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ABSTRACT

The objective of this study was to devise a methodology for predicting the return or nonreturn of a student for the spring semester, upon his completion of the fall term. Nineteen variables from existing student files were examined by several multivariate analyses to determine their ability to help in such a prediction. The random sample was of 1,000 students. The initial set of demographic variables had only limited predictive capabilities. Improvement in prediction would require additional, subjective information about the students such as attitudes or educational goals. Extensive data charts are included. (MSE)

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# 1976-77 FALL TO SPRING ATTRITION

# AT UW-PARKSIDE

# A MULTIVARIATE APPROACH

Dave Vogt
Institutional Analysis & Registration
May 10, 1977

# 1976-77 FALL TO SPRING ATTRITION AT UW-PARKSIDE: A MULTIVARIATE ANALYSIS APPROACH

The University of Wisconsin-Parkside was established in 1967, making it one of the youngest of the thirteen campuses in the UW-System. It is located between the cities of Racine and Kenosha on a rolling 700 acre site. In Fall 1976, nearly 5,000 students enrolled, all of whom were commuters. Almost half of these students attended on a part-time basis, enrolling for less than 12 credit hours per semester. Furthermore, 21% were non-degree seeking students, and their average age was 24.7 years.

Given the characteristics of this student body, it is not surprising that nearly one quarter of the students who completed the fall semester, did not re-enroll for the Spring term. However, during the next decade the number of traditionally aged students available will decline both locally and nationally. In order to maintain relatively stable enrollments, UW-Parkside will need to attract and retain similar proportions from the non-traditionally aged segments of the population in its immediate geographic area. Thus, understanding the reasons behind retention patterns for all segments of the student body is of importance to the campus. Further, if it would be possible to predict those students with a high probability of non-return to the campus, effort might well be expended to improve the retention rate for these students.

## PROBLEM

The objective, then, was to attempt to devise a methodology for predicting the ensuing return or non-return status of a student for the spring semester, given that the student had completed the fall term. To this end, a number of demographic variables from the existing student file at UW-Parkside were explored via several

multivariate approaches to determine their ability to aid in this prediction process. This paper deals with the results and findings of this endeavor.

The selected 19 demographic variables are listed in Table 1, along with the dependent variable, Return Status. Many of these same variables had been used in an earlier study of non-return rates for students completing the Spring semester, but not registering for the following Fall semester.[1] In that study a modified Chi-squared distribution, which allowed rapid approximation of the binomial distribution, was employed to test for statistical significance between the total proportion of non-returning students and the proportion of non-returning students in a particular category within each individual variable. The results of that study indicated that past semester hours, cumulative GPA, prime major type, and class were significant with respect to return status.

## METHOD AND RESULTS

A tape file of the variables indicated in Table 1 was established for a random sample of 1,000 students using the end of semester student file and a Data Analyzer program. The return status of each student in the sample was also set during this run, with non-return equal 1 and return equal 2. Students who had graduated at the end of the Fall semester were, naturally, excluded. In total there were 3,524 returning and 1,047 non-returning students who completed the Fall semester and did not graduate. The sample drawn consisted of 764 returning and 236 non-returning students. The proportion of non-returners in the sample appeared to be within acceptable sampling limits of the 22.9% for the population. Similar examination of other variables, such as class, sex and age, indicated that the sample was representative.

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[1] David R. Vogt, "A Preliminary Study of Attrition/Retention," Facilities Management and Institutional Studies, University of Wisconsin-Parkside, May 12, 1975.

TABLE 1

LIST OF DEMOGRAPHIC VARIABLES FROM STUDENT FILE

| VARIABLE | LABEL | EXPLANATION |
|---|---|---|
| RETURN | RETURN STATUS | Indicates if student returned to register in Spring semester |
| AGE | AGE | Age at time of most recent registration |
| APLMO | APPLICATION MONTH | Month application received |
| CLASS | CLASS | Frshmn thru senior based on hours earned, specials are non-degree seeking |
| CUMGPA | CUMULATIVE GPA | Cumulative Grade Point Average on 4.00 scale |
| CUMHRS | HOURS FOR GPA | Credit Hours counted in GPA calculations |
| HREARN | HOURS EARNED AT UW-PKS | Total Credit Hours earned at UW-Parkside |
| HSPCT | HIGH SCHOOL PERCENTILE | Percentile rank in high school graduating class |
| HSYR | HIGH SCHOOL YEAR OF GRAD | Last two digits of year of graduation from high school |
| MAJR1 | PRIME MAJOR | Academic division of student's first major |
| MAJTP1 | PRIME MAJOR TYPE | Indicates if student has formally declared a major |
| MARITL | MARITAL STATUS | Indicates if student is single or married |
| PRES | PERMANENT RESIDENCY | County of residence |
| PSEMHR | PAST SEMESTER HOURS | Number of Credit Hours carried in Past or Fall semester |
| RACE | RACE | Indicates the racial heritage of the student |
| RESFEE | RESIDENT FEE | Resident or non-resident for fee purposes |
| SEX | SEX | Male or female |
| TRANHR | TRANSFER HOURS | Credit Hours transferred from other institutions |
| TRNGPA | TRANSFER GPA | Grade Point Average at most recently attended transfer institution |
| VET | VETERAN STATUS | Indicates if student served 181 days in U.S. Armed Forces |

Factor Analysis

As a next step, principal component analysis was employed with input consisting of the 19 independent variables for each of the 1,000 students in the sample. The purpose of this multivariate technique was to "determine those linear combinations which captured as much of the variation as possible (in the independent variables), while at the same time being linearly independent of all other principle components."[2] Another source explains this process developed by Hotelling in the mid-1930's as follows:

> "Principal-component analysis is a relatively straightforward method of transforming a given set of variables into a new set of composite variables or principal components that are orthogonal (uncorrelated) to each other. No particular assumption about the underlying structure of the variables is required. One simply asks what would be the best linear combination of variables--best in the sense that the particular combination of variables would account for more of the variance in the data as a whole than any other linear combination of variables. The first principal component, therefore, may be viewed as the single best summary of linear relationships exhibited in the data. The second component is defined as the second best linear combination of variables, under the condition that the second component is orthogonal to the first. To be orthogonal to the first component, the second one must account for the proportion of the variance not accounted for by the first one. Thus, the second component may be defined as the linear combination of variables that accounts for the most residual variance after the effect of the first component is removed from the data. Subsequent components are defined similarly until all the variance in the data is exhausted. Unless at least one variable is perfectly determined by the rest of the variables in the data, the principal-component solution requires as many components as there are variables."[3]

One question which naturally arises with principal component analysis is how many components or factors are enough, as is implied from the last sentence in the above statement from SPSS. In this instance the scree test, or Horn's rule, which is

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[2]Ben W. Bloch and Cliff J. Huang, Multivariate Statistical Methods for Business and Economics (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1974), p. 249.

[3]Norman H. Nie, et al., Statistical Package for the Social Sciences, (2nd ed.; New York: McGraw-Hill Book Company, 1975), p. 470.

a refinement of the earliest test in the field as devised by Tucker in 1938, was used. Tatsuoka describes this method as follows:

> "The scree test consists in examining the plot of the entire set of $p$ eigenvalues against their ordinal numbers. Such a plot typically shows a steep initial descent (like a negative exponential curve), followed by a terminal arm that is very nearly a straight line with a gradual downward slope. The recommendation is to retain all the components down to and including the one associated with the largest eigenvalue whose plot lies on the scree line."[4]

Figure 1 on the following page shows the eigenvalues and percent of variance associated with each component or factor. A plot of eigenvalues for the scree test is also shown. From this information it can be seen that the first two components were of significance. Together they accounted for 31.6% of the variance in the 19 independent variables.

It was elected to retain these two for further factor analysis in the form of quartimax rotation. Quartimax rotation was chosen because only two factors were involved, and the objective of this approach is to have each variable load heavily on one factor only.[5] Table 2 shows the resultant factor loadings for the unrotated and rotated factors. Examination of these data discloses that in the unrotated form, Hours for GPA and Hours Earned at UW-Pakside loaded at about the 0.65 level on both factors. Age and Class also loaded heavily on factor 1 in the same direction, 0.63 and 0.73, respectively, while High School Year of Graduation loaded heavily on factor 1, but with a negative 0.67. Since one usually accumulates more hours earned and progresses in class rank as age increases, and at the same time has a fixed year of high school graduation, factor 1 appears to be based on age and class. In the case of factor 2, High School Percentile, Major Type and Past Semester

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[4]Maurice M. Tatsuoka, Multivariate Analysis: Techniques for Educational and Psychological Research (New York: John Wiley & Sons, Inc., 1971), p. 147.

[5]Nie, SPSS, pp. 285-286.

FIGURE 1

FACTOR EIGENVALUES AND PERCENT OF VARIANCE "EXPLAINED"



| FACTOR | EIGENVALUE | PCT OF VAR | CUM PCT |
|---|---|---|---|
| 1 | 3.24096 | 17.1 | 17.1 |
| 2 | 2.76833 | 14.6 | 31.6 |
| 3 | 1.54764 | 8.1 | 39.8 |
| 4 | 1.45450 | 7.7 | 47.4 |
| 5 | 1.26795 | 6.7 | 54.1 |
| 6 | 1.16780 | 6.1 | 60.2 |
| 7 | 1.02062 | 5.4 | 65.6 |
| 8 | 0.95728 | 5.0 | 70.7 |
| 9 | 0.82401 | 4.3 | 75.0 |
| 10 | 0.77187 | 4.1 | 79.1 |
| 11 | 0.71946 | 3.8 | 82.8 |
| 12 | 0.68801 | 3.6 | 86.5 |
| 13 | 0.62668 | 3.3 | 89.8 |
| 14 | 0.58586 | 3.1 | 92.8 |
| 15 | 0.47666 | 2.5 | 95.4 |
| 16 | 0.42839 | 2.3 | 97.6 |
| 17 | 0.33233 | 1.7 | 99.4 |
| 18 | 0.11658 | 0.6 | 100.0 |
| 19 | 0.00478 | 0.0 | 100.0 |

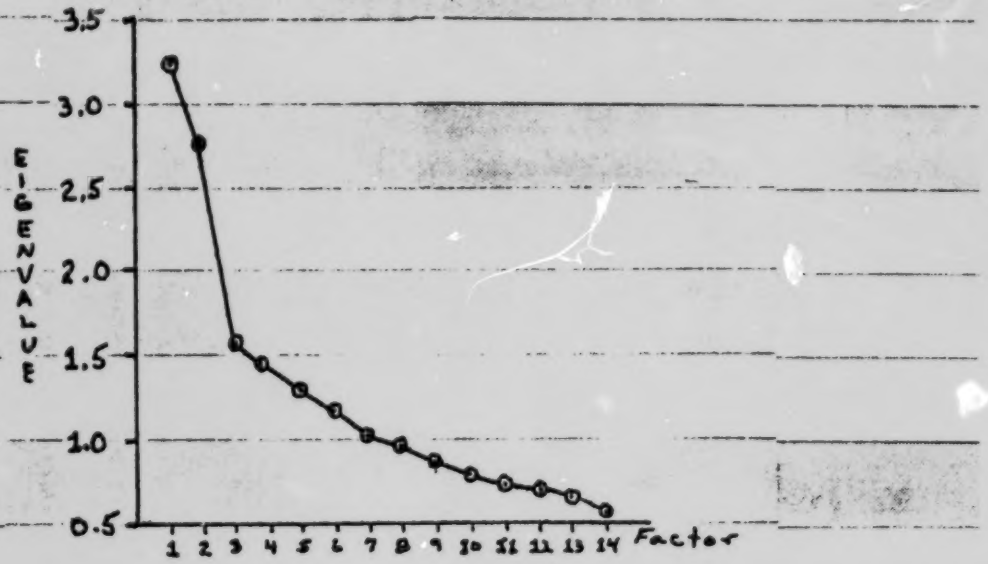

TABLE 2

FACTOR LOADINGS ON UNROTATED AND ROTATED FACTORS

FACTOR MATRIX USING PRINCIPAL FACTOR, NO ITERATIONS

| | AGE/ CLASS FACTOR 1 | PERSISTENCE IN HOURS EARNED FACTOR 2 |
|---|---|---|
| AGE | 0.62772 ✓ | -0.47556 |
| APLMO | 0.23283 | 0.20724 |
| CLASS | 0.73159 ✓ | -0.18788 |
| CUMGPA | 0.13426 | 0.30837 |
| CUMHRS | 0.66969 ✓ | 0.64897 ✓ |
| HREARN | 0.66784 ✓ | 0.64809 ✓ |
| HSPCT | -0.44887 | 0.55418 ✓ |
| HSYR | -0.67194 ✓ | 0.12411 |
| MAJR1 | -0.26913 | -0.24906 |
| MAJTP1 | 0.43756 | 0.52833 ✓ |
| MARITL | 0.47846 | -0.41684 |
| PRES | -0.00893 | -0.08564 |
| PSEMHR | -0.34560 | 0.64811 ✓ |
| RACE | 0.02674 | 0.04670 |
| RESFEE | -0.02801 | -0.10366 |
| SEX | -0.10265 | -0.05890 |
| TRANHR | 0.23931 | -0.37373 |
| TRNGPA | 0.02805 | 0.32668 |
| VET | -0.06187 | 0.00961 |

QUARTIMAX ROTATED FACTOR MATRIX

| | AGE/ SCH LOAD FACTOR 1 | PERSISTENCE/ MAJTP FACTOR 2 |
|---|---|---|
| AGE | 0.78751 ✓ | 0.00298 |
| APLMO | 0.05928 | 0.30602 |
| CLASS | 0.69548 ✓ | 0.29467 |
| CUMGPA | -0.06454 | 0.33871 |
| CUMHRS | 0.13841 | 0.92222 ✓ |
| HREARN | 0.13748 | 0.92039 ✓ |
| HSPCT | -0.69308 ✓ | 0.16804 |
| HSYR | -0.60937 ✓ | -0.30915 |
| MAJR1 | -0.06275 | -0.36128 |
| MAJTP1 | 0.02713 | 0.68546 ✓ |
| MARITL | 0.63325 ✓ | -0.04093 |
| PRES | 0.04488 | -0.07348 |
| PSEMHR | -0.66800 ✓ | 0.30538 |
| RACE | -0.00709 | 0.05335 |
| RESFEE | 0.04065 | -0.09939 |
| SEX | -0.04584 | -0.10911 |
| TRANHR | 0.41701 | -0.15180 |
| TRNGPA | -0.17596 | 0.27666 |
| VET | -0.05501 | -0.02991 |

TRANSFORMATION MATRIX

| | FACTOR 1 | FACTOR 2 |
|---|---|---|
| FACTOR 1 | 0.79479 | 0.60689 |
| FACTOR 2 | -0.60689 | 0.79479 |

Hours loaded at greater than the 0.50 level in addition to cumulative hours and hours earned at UW-Parkside. Factor 2 might, therefore, be interpreted as being based on persistence. That is, the greater the degree of persistence for a given student, the higher the past semester hours, the more likely to have declared a major, the greater the accumulated hours earned, and, evidently, the better the performance in high school. After rotation, Age, Class and Marital Status loaded heavily in a positive manner on factor 1, while High School Percentile, High School Year of Graduation and Past Semester Hours loaded at above the 0.60 level in a negative direction. Also, after rotation only three variables loaded heavily on factor 2, and these all in a positive manner: Cumulative Hours for GPA, Hours Earned at UW-Parkside and Prime Major Type.

Finally, on the basis of the rotated factor loadings, two factor scores were computed for each of the 1,000 subjects. Due to an anomaly of SPSS these scores could not be added directly to the file, but had to be punched out in card form with the original file and the cards merged to create a new file. It was hoped that the addition of the two factor scores might help to improve the predictability of the return status of the students included in the sample.

Cross Tabs

The next method of analysis, AID, requires that all variables be classified in categories. Further, to cut down on the computation time required, each variable was limited to nine or less categories. The necessary recoding of continuous variables and those discrete variables with more than nine categories was accomplished with the data transformation capabilities which are a part of SPSS. At the same time, it was felt that it would be advantageous to run cross tabulations of each independent variable versus the dependent variable of return status.

The potential advantages of this cross tabulation run were twofold. First, the transformation or categorization of each independent variable could be checked.

Of at least equal importance was the *added understanding obtainable from* examination of the output. However, since the next analysis method, AID, is a more powerful tool than cross tabs, only one independent variable was examined at a time.

Figure 2 shows the resultant output for the cross-tabulation of Return Status by Age. From this figure it can be seen that the continuous variable age was classified into eight categories: 1 = age 0 to 17, 2 = age 18, 3 = age 19, 4 = age 20, 5 = age 21 to 22, 6 = age 23 to 24, 7 = age 25 to 34 and 8 = age 35 & over. Theoretically, if age and return status were statistically independent, the column percentages across each age category should equal the grand total distribution by return status. That is, each category should have 23.6% non-return and 76.4% return with discrepancies from these percentages due entirely to sampling error, unless there is a statistically significant relationship between the variables. Further examination discloses that the return rate for age categories 2 through 5 was about 80% or higher, while for categories 6, 7 and 8 the return rate was in the 60 to 70% range. Also, for the youngest students, most of whom were concurrently attending high school, the return rate dropped to only 41.7%.

Three statistics for measuring statistical significance of the relationship were produced as a part of the cross tabs output: Chi-square, Lambda, and the Uncertainty Coefficient. The first of these, Chi-square, is useful in determining whether or not a relationship exists. However, for large sample sizes, Chi-square is very sensitive to even miniscule deviations, and the 0.0000 or 1 in 10,000 significance shown for age can only safely be interpreted as showing that some statistical relationship exists. The strength of this relationship is not indicated by Chi-square. Lambda, on the other hand, is a measure of association based on nominal-level variables.[6] The asymmetric lambda with return status as the dependent

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[6]Nie, SPSS, pp. 225-226.

FIGURE 2



CROSSTABULATION OF RETURN NON-RETURN OR RETURN STATUS BY AGE

| RETURN | COUNT / ROW PCT / COL PCT / TOT PCT | AGE 10-17 | 18 | 19 | 20 | 21-22 | 23-24 | 25-34 | 35&+ | ROW TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| 1 NON-RTRN | | 7 | 20 | 24 | 18 | 29 | 37 | 66 | 35 | 236 |
| | | 3.0 | 8.5 | 10.2 | 7.6 | 12.3 | 15.7 | 28.0 | 14.8 | 23.6 |
| | | 58.3 | 14.0 | 20.9 | 14.8 | 15.8 | 31.9 | 30.6 | 38.0 | |
| | | 0.7 | 2.0 | 2.4 | 1.8 | 2.9 | 3.7 | 6.6 | 3.5 | |
| 2 RETURN | | 5 | 123 | 91 | 104 | 155 | 79 | 150 | 57 | 764 |
| | | 0.7 | 16.1 | 11.9 | 13.6 | 20.3 | 10.3 | 19.6 | 7.5 | 76.4 |
| | | 41.7 | 86.0 | 79.1 | 85.2 | 84.2 | 68.1 | 69.4 | 62.0 | |
| | | 0.5 | 12.3 | 9.1 | 10.4 | 15.5 | 7.9 | 15.0 | 5.7 | |
| COLUMN TOTAL | | 12 | 143 | 115 | 122 | 184 | 116 | 216 | 92 | 1000 |
| | | 1.2 | 14.3 | 11.5 | 12.2 | 18.4 | 11.6 | 21.6 | 9.2 | 100.0 |

RAW CHI SQUARE = 48.26967 WITH 7 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0000
LAMBDA (ASYMMETRIC) = 0.00847 WITH RETURN DEPENDENT. = 0.00638 WITH AGE DEPENDENT.
LAMBDA (SYMMETRIC) = 0.00686
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.04318 WITH RETURN DEPENDENT. = 0.01211 WITH AGE
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.01892

variable measures the percentage of improvement in the ability to predict the value of this variable, given the value of the independent variable, age. As can be seen from Figure 2, the percentage improvement in the prediction of return status, given the age category, is only 0.847%. Finally, the asymmetric Uncertainty Coefficient indicates the proportion by which the "uncertainty" in the dependent variable is reduced by knowledge of the independent variable. The concept of "uncertainty" comes from information theory and has to do with the ambiguity of data distributions. Again from Figure 2 it can be seen that knowledge of age reduced the uncertainty in return status by 4.32%.

The cross tab outputs for the remaining independent variables, including Factor Score 1 and Factor Score 2, are contained in Appendix A. Some evidence of non-linearity can be noted for the following variables: Application Month, Cumulative GPA, Hours Earned (since none is categorized as 8), High School Percentile (for the same reason), Prime Major, Permanent Residency, and Factor Score 2. In addition Table 3 gives each of the three statistical measures with the independent variables arranged in descending order of the asymmetric uncertainty coefficient. From this table it is possible to begin to ascertain those variables which may be of greatest utility in predicting the return status of a given student.

Automatic Interaction Detector

In order to further explore the relationships between the dependent and independent variables, a technique known as the Automatic Interaction Detector was employed. AID 3 is a number crunching technique which looks ahead one step at a time to see which categorical subdivision of each independent variable will result in the greatest reduction in the weighted sum of squares variance in the dependent variable. Further, since categories may be split in any order, the linearity of the relationship between the dependent and each independent variable can be explored at each stage of the splitting process.

TABLE 3

SIGNIFICANCE MEASURES OF STATISTICAL RELATIONSHIPS BETWEEN RETURN STATUS AND EACH INDEPENDENT VARIABLE FROM CROSS TABS

| Variable Label | Asymmetric Uncertainty Coef. | Asymmetric Lambda | $\chi^2$ Signif. |
|---|---|---|---|
| Past Semester Hours | 17.05% | 10.17% | 0.0 |
| Hours Earned at UW-Parkside | 13.87% | 19.92% | 0.0 |
| Class | 11.13% | 8.90% | 0.0 |
| Application Month | 10.29% | 6.36% | 0.0 |
| Cumulative GPA | 10.26% | 13.98% | 0.0 |
| Cumulative Hours | 13.56% | 9.90% | 0.0 |
| Factor Score 2 | 9.57% | 0.00% | 0.0 |
| Factor Score 1 | 8.80% | 1.70% | 0.0000 |
| High School Percentile | 8.46% | 1.70% | 0.0000 |
| Prime Major Type | 5.76% | 0.00% | 0.0000 |
| Prime Major | 4.46% | 1.07% | 0.0000 |
| Age | 4.32% | 0.85% | 0.0000 |
| High School Year of Graduation | 3.95% | 0.00% | 0.0000 |
| Marital Status | 1.67% | 0.00% | 0.0000 |
| Transfer GPA | 0.84% | 0.00% | 0.3685 |
| Permanent Residency (County) | 0.71% | 0.00% | 0.1508 |
| Resident Fee | 0.37% | 0.00% | 0.2621 |
| Sex | 0.18% | 0.00% | 0.1888 |
| Race | 0.04% | 0.00% | 0.7931 |
| Veteran Status | 0.03% | 0.00% | 0.6409 |
| Transfer Hours | 0.01% | 0.00% | 0.2234 |

Appendix B contains detailed output for the initial subdivision of the sample. Table 4 gives the AID summary. From this it can be seen that for Group 1: the overall mean of the dependent variable, return status, was 1.764; the weighted sum of squares (SS), which is the product of "Sum W" and "Variance", was 180.5; the largest Between Sum of Squares (BSS) attainable resulted in a 17.3% reduction in variance; and this was accomplished by splitting Group 1 on the basis of Past Semester SCH Load, with categories 1 and 2 (less than 6 SCH) going to Group 2 and those with categories 4, 3, 5 and 6 (6 or more SCH) going into Group 3.

The information in Table 4 is shown in a slightly different, and hopefully more understandable form in Figure 3. This Summary Tree indicates that those students who enroll for less than 6 credits; apply during the months of September, October, November, May, June or July; and attain generally low grade point averages are the least likely to return. Their average return status is 1.111. On the other end of the spectrum, those students who enroll for 6 or more credits; have a cumulative GPA above 1.50; and are sophomores, juniors, seniors or freshmen are the most likely to return. The mean return status of these 635 students is 1.920. Along this same line of demarcation, Figure 3 discloses that PSEMHR accounts for 17.3% of the variance, CUMGPA for 6.6% and Class for 1.2%. Further, all seven splits into the fifteen groups "explain" a total of 32.7% of the original variance in the dependent variable.

Discriminant Analysis and Regression

Having gained insights into the relationships between the dependent and independent variables through the above analyses, the next step was to determine if this information could be used to increase the predictability of return status for individual students. Two related techniques, discriminant analysis and multiple regression, were used for this purpose. Both of these mathematical models are premised on the assumption that there is a linear combination of the independent variables which will predict the dependent variable with a minimum square error.

TABLE 4

AUTOMATIC INTERACTION DETECTOR GROUP SUMMARY TABLE

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                                                GROUP SUMMARY TABLE
                                    15 GROUPS OF WHICH  7 ARE FINAL (INDICATED BY *)

GROUP   1 , N =     1000, SUM W =   1.000000+03
    Y MEAN=  1.764000+00, VARIANCE=  1.804845-01,   SS(L)/TSS= 1.000, BSS/TSS=  .173
    SPLIT ON PAST SEMESTER SCH LOAD , BSS(L) =   3.113353+01  INTO
       GROUP  2 WITH CLASSES   1  2
       GROUP  3 WITH CLASSES   4  3  5  6

GROUP   3 , N =      760, SUM W =   7.600000+02
    Y MEAN=  1.863159+00, VARIANCE=  1.182720-01,   SS(L)/TSS=  .498, BSS/TSS=  .066
    SPLIT ON CUMULATIVE GPA         , BSS(L) =   1.168986+01  INTO
       GROUP  4 WITH CLASSES   1  2  3
       GROUP  5 WITH CLASSES   4  6  5  8  7

GROUP   2 , N =      240, SUM W =   2.400000+02
    Y MEAN=  1.450000+00, VARIANCE=  2.485356-01,   SS(L)/TSS=  .329, BSS/TSS=  .031
    SPLIT ON APPLICATION MONTH      , BSS(L) =   5.554227+00  INTO
       GROUP  6 WITH CLASSES   6  7  3  4
       GROUP  7 WITH CLASSES   8  5  2  9  1

GROUP   5 , N =      687, SUM W =   6.870000+02
    Y MEAN=  1.903930+00, VARIANCE=  8.696705-02,   SS(L)/TSS=  .331, BSS/TSS=  .012
    SPLIT ON CLASS                  , BSS(L) =   2.082336+00  INTO
       GROUP  8 WITH CLASSES   5
       GROUP  9 WITH CLASSES   2  3  4  1

GROUP   4 , N =       73, SUM W =   7.300000+01
    Y MEAN=  1.479452+00, VARIANCE=  2.530442-01,   SS(L)/TSS=  .101, BSS/TSS=  .014
    SPLIT ON HIGH SCHOOL YEAR OF GRAD, BSS(L) =   2.573725+00  INTO
       GROUP 10 WITH CLASSES   9  6  5  2  7
       GROUP 11 WITH CLASSES   1  4  3

GROUP   9*, N =      635, SUM W =   6.350000+02
    Y MEAN=  1.919685+00, VARIANCE=  7.398101-02,   SS(L)/TSS=  .260, BSS/TSS=  .000

GROUP   6 , N =      140, SUM W =   1.400000+02
    Y MEAN=  1.321429+00, VARIANCE=  2.196814-01,   SS(L)/TSS=  .169, BSS/TSS=  .022
    SPLIT ON CUMULATIVE GPA         , BSS(L) =   3.868426+00  INTO
       GROUP 12 WITH CLASSES   1  7  3
       GROUP 13 WITH CLASSES   6  4  5  2  8

GROUP   7*, N =      100, SUM W =   1.000000+02
    Y MEAN=  1.630000+00, VARIANCE=  2.356546-01,   SS(L)/TSS=  .129, BSS/TSS=  .000

GROUP  13 , N =       86, SUM W =   8.600000+01
    Y MEAN=  1.453488+00, VARIANCE=  2.507524-01,   SS(L)/TSS=  .118, BSS/TSS=  .009
    SPLIT ON AGE                    , BSS(L) =   1.701399+00  INTO
       GROUP 14 WITH CLASSES   2  8  4  6
       GROUP 15 WITH CLASSES   7  5  1  3

GROUP  12*, N =       54, SUM W =   5.400000+01
    Y MEAN=  1.111111+00, VARIANCE=  1.006289-01,   SS(L)/TSS=  .030, BSS/TSS=  .000

GROUP   9*, N =       52, SUM W =   5.200000+01
    Y MEAN=  1.711538+00, VARIANCE=  2.092760-01,   SS(L)/TSS=  .059, BSS/TSS=  .000

GROUP  15*, N =       44, SUM W =   4.400000+01
    Y MEAN=  1.590909+00, VARIANCE=  2.473573-01,   SS(L)/TSS=  .059, BSS/TSS=  .000

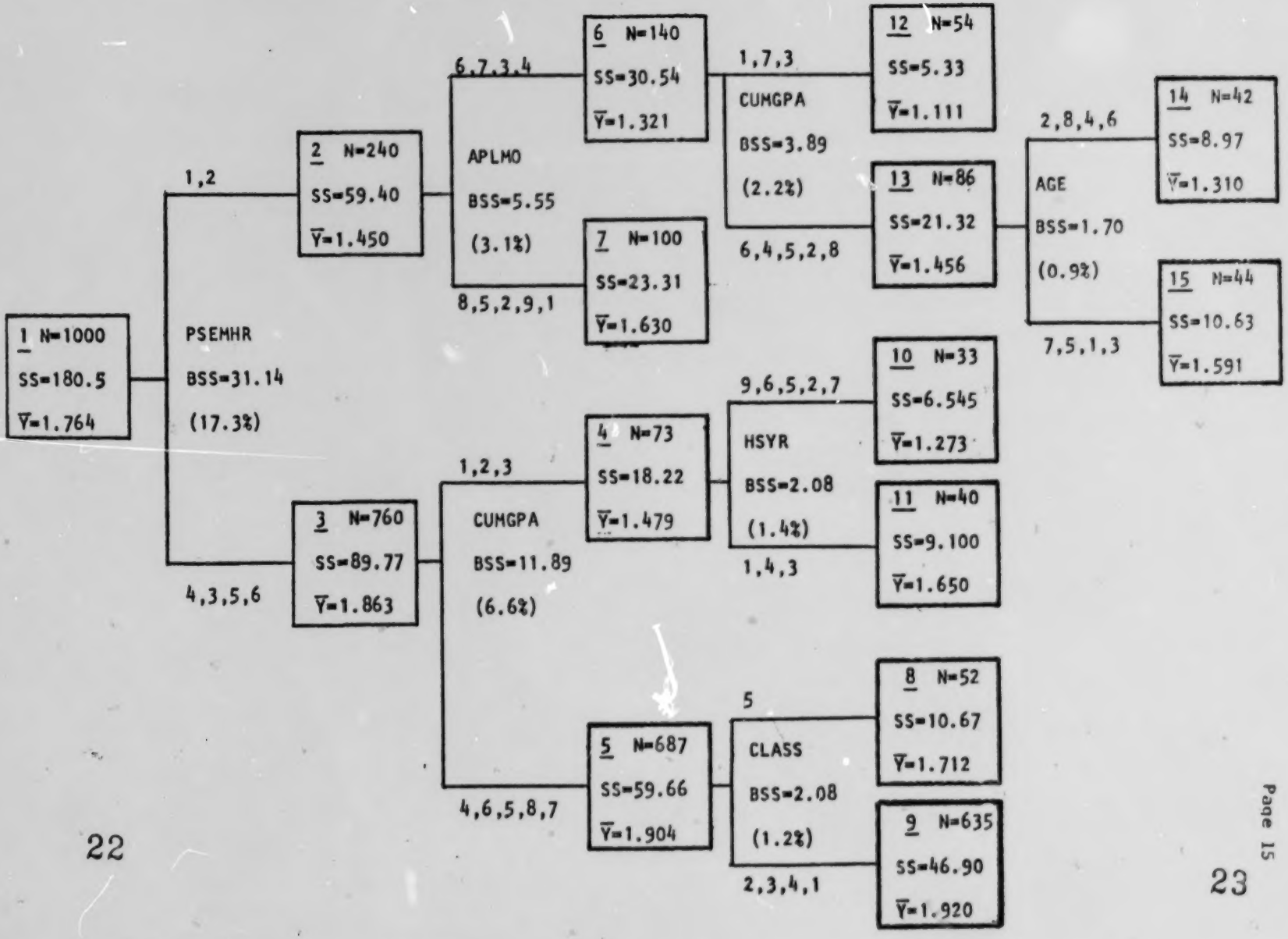
GROUP  11*, N =       40, SUM W =   4.000000+01
    Y MEAN=  1.450000+00, VARIANCE=  2.231281-01,   SS(L)/TSS=  .050, BSS/TSS=  .000

GROUP  14*, N =       42, SUM W =   4.200000+01
    Y MEAN=  1.309524+00, VARIANCE=  2.189315-01,   SS(L)/TSS=  .050, BSS/TSS=  .000

GROUP  10*, N =       33, SUM W =   3.300000+01
    Y MEAN=  1.272727+00, VARIANCE=  2.045455-01,   SS(L)/TSS=  .038, BSS/TSS=  .000
```

FIGURE 3

AUTOMATIC INTERACTION DETECTOR GROUP SUMMARY TREE



In fact, when the dependent variable is dichotomous, as it is in this case, discriminant analysis can be reduced to a multiple regression analysis.[7,8] However, each method yields different types of output for the evaluation of the prediction of the dependent variable, so both were used.

Discriminant analysis is used to statistically distinguish between two or more groups of cases. The objective is "to weight and linearly combine the discriminating (independent) variables in some fashion so that the groups are forced to be as statistically distinct as possible."[9] In addition to the standardized discriminant function coefficients, which are of importance in interpreting the relative contribution of the associated variable, SPSS also provides as output a confusion matrix. Similarly, multiple regression output provides standardized beta weights, which also aid in interpreting relative importance of independent variables, and $r^2$, the coefficient of determination. This latter coefficient is a natural measure of prediction, since it yields the decimal fraction of the total variation in the dependent variable which is "explained" by the regression line.

Three sets of discriminant analysis and regression were run. All were done in a stepwise manner. For the discriminant analysis, Mahalanobis distance was used, since several of the independent variables were highly correlated.[10] Also, a priori odds based on the initial split of the sample on the denpendent variable of return status were used to adjust the final classification of students in the discriminant analysis. An explanation of this weighting process is found in Van de Geer.[11] However, the

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[7]Tatsuoka, Multivariate Analysis, p. 173.

[8]John P. Van de Geer, Introduction to Multivariate Analysis for the Social Sciences (San Francisco: W. H. Freeman & Company, 1971), p. 266.

[9]Nie, SPSS, p. 435.

[10]Van de Geer, Multivariate Analysis, p. 256.

[11]Ibid., p. 262.

resultant Bayesian weightings from these a priori odds are not reflected in the discriminant function coefficients output by SPSS.[12]

The three sets of runs were done as follows:

1) Run discriminant analysis and multiple regression in a forward stepwise mode using only the initial 19 independent variables.
2) Repeat step 1, but with Factor Scores One and Two added to the independent variable list.
3) Rerun discriminant analysis and multiple regression after transforming application month and high school year of graduation to take into account non-linearities disclosed by the AID analysis, and after establishing four dummy variables to take into account the interaction relationships disclosed by AID analysis. These dichotomous variables were established in the following manner:
    a) Variable 'A' was set equal to zero if Past Semester Hours was less than 6.0, and if the transformed Application Month was less than 4 (i.e., May, June, July, September, October, November). Otherwise variable 'A' was set equal to 1.
    b) Variable 'B' added the stipulation that Cumulative GPA be less than 1.50 to those already listed for Variable 'A' before it would be set to zero.
    c) Variable 'C' was set to zero when Past Semester Hours was less than 6.0, Cumulative GPA was less than 1.50 and Class was equal to 5 (i.e., special).

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[12] Nie, SPSS, p. 445.

d) Variable 'D' was established with a zero value if Past Semester Hours was less than 6.0, Cumulative GPA was less than 1.50 and the transformed High School Year of Graduation was less than or equal to 3 (i.e., the student graduated in 1976, 1974 or 1973).

The results of the first runs with the original 19 variables are shown in Tables 5 and 6. From these tables it can be seen that 10 variables were included in the discriminant function and from the confusion matrix 82.0% of the cases were correctly classified. However, only 48.3% of the non-return students were correctly classified by this function and 7.6% of the return students were misclassified. Examination of Table 6 indicates that 18 variables were included in the stepwise regression analysis. Even so, the coefficient of determination indicates that only 29.17% of the original variation in return status is explained by this linear combination.

Although the standardized beta coefficients were output by SPSS, the high degree of correlation between certain variables (especially Cumulative Hours Earned for GPA and Total Hours Earned at UW-Parkside) makes the interpretation of these weights difficult, due to the problems multicollinearity. However, multicollinearity does not affect the predictive capabilities of the variables involved. The correlation matrices relating to the three sets of runs are contained in Appendix C.

As a next step the discriminant analysis and regression runs were made with the two factor scores added to the original independent variables. Table 7 indicates the 13 variables selected in the stepwise mode, and it can be seen that Factor Score 2 entered into the discriminant function with a relatively high standardized coefficient. Even though the eigenvalue of the discriminant function increased slightly, and the two centroids moved slightly further apart, the prediction

TABLE 5

STEPWISE DISCRIMINANT ANALYSIS WITH 19 ORIGINAL VARIABLES

| DISCRIMINANT FUNCTION | EIGENVALUE | RELATIVE PERCENTAGE | CANONICAL CORRELATION | FUNCTIONS DERIVED | WILKS' LAMBDA | CHI-SQUARE |
|---|---|---|---|---|---|---|
| | | | | 0 | 0.7103 | 339.447 |
| 1 | 0.40778 | 100.00 | 0.538 | | | |

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

| | FUNC 1 |
|---|---|
| CLASS | -0.39566 |
| CUMGPA | 0.30436 |
| CUMHRS | -2.16919 |
| HREARN | 2.26495 |
| HSYR | -0.17953 |
| MAJR1 | -0.14143 |
| MAJTP1 | 0.14683 |
| PSEMHR | 0.59041 |
| RESFEE | 0.05717 |
| SEX | -0.13132 |
| TRNGPA | 0.06425 |

PREDICTION RESULTS -

| ACTUAL GROUP | NO. OF CASES | PREDICTED GROUP MEMBERSHIP GP. 1 | GP. 2 |
|---|---|---|---|
| GROUP 1 NON-RTRN | 236. | 114. 48.3% | 122. 51.7% |
| GROUP 2 RETURN | 764. | 58. 7.6% | 706. 92.4% |

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 82.00%

CENTROIDS OF GROUPS IN REDUCED SPACE

| | FUNC 1 |
|---|---|
| GROUP 1 NON-RTRN | -0.96786 |
| GROUP 2 RETURN | 0.29898 |

TABLE 6

STEPWISE MULTIPLE REGRESSION WITH 19 ORIGINAL VARIABLES

* * * * * * * * * * * * * * * * * * * * * * * * * MULTIPLE REGRESSION * * * * * * * * * * * * VARIABLE LIST 1
REGRESSION LIST 1

DEPENDENT VARIABLE.. RETURN NON-RETURN OR RETURN STATUS

SUMMARY TABLE

| VARIABLE | | MULTIPLE R | R SQUARE | RSQ CHANGE | SIMPLE R | B | BETA |
|---|---|---|---|---|---|---|---|
| PSEMHR | PAST SEMESTER HOURS | 0.41614 | 0.17318 | 0.17318 | 0.41614 | 0.02700 | 0.32192 |
| CUMGPA | CUMULATIVE GPA | 0.47823 | 0.22870 | 0.05553 | 0.27305 | 0.07555 | 0.16787 |
| CLASS | | 0.49286 | 0.24291 | 0.01421 | -0.21880 | -0.06420 | -0.22516 |
| MAJTP1 | PRIME MAJOR TYPE | 0.51130 | 0.26143 | 0.01852 | 0.24243 | 0.06162 | 0.07148 |
| HSYR | HIGH SCHOOL YEAR OF GRADUATION | 0.51776 | 0.26807 | 0.00664 | 0.01888 | -0.00263 | -0.09001 |
| MAJR1 | PRIME MAJOR | 0.52135 | 0.27180 | 0.00373 | -0.13600 | -0.00117 | -0.07418 |
| SEX | | 0.52498 | 0.27560 | 0.00380 | -0.04394 | -0.06214 | -0.07239 |
| TRNGPA | TRANSFER GPA | 0.52590 | 0.27657 | 0.00097 | 0.07686 | 0.00761 | 0.02456 |
| HREARN | HOURS EARNED AT UW-PKS | 0.52685 | 0.27757 | 0.00100 | 0.17974 | 0.01451 | 1.26405 |
| CUMHRS | HOURS FOR GPA | 0.53739 | 0.28879 | 0.01122 | 0.16000 | -0.01367 | -1.20313 |
| RESFEE | RESIDENT FEE | 0.53823 | 0.28969 | 0.00090 | 0.01139 | 0.06097 | 0.03041 |
| TRANHR | TRANSFER HOURS | 0.53881 | 0.29032 | 0.00063 | 0.03287 | 0.00069 | 0.03385 |
| PRES | PERMANENT RESIDENCY | 0.53917 | 0.29071 | 0.00039 | -0.02018 | -0.00057 | -0.01909 |
| MARITL | MARITAL STATUS | 0.53947 | 0.29103 | 0.00032 | -0.13813 | -0.02318 | -0.02466 |
| HSPCT | HIGH SCHOOL PERCENTILE | 0.53971 | 0.29129 | 0.00026 | 0.27988 | -0.00025 | -0.01921 |
| RACE | | 0.53990 | 0.29150 | 0.00021 | 0.03149 | -0.01528 | -0.01396 |
| AGE | | 0.54001 | 0.29161 | 0.00011 | -0.14504 | 0.00095 | 0.01693 |
| VET | VETERAN STATUS | 0.54011 | 0.29172 | 0.00011 | 0.01819 | 0.00505 | 0.01083 |
| (CONSTANT) | | | | | | 1.75877 | |

TABLE 7

STEPWISE DISCRIMINANT ANALYSIS WITH FACTOR SCORES ADDED

| DISCRIMINANT FUNCTION | EIGENVALUE | RELATIVE PERCENTAGE | CANONICAL CORRELATION | FUNCTIONS DERIVED | WILKS' LAMBDA | CHI-SQUARE |
|---|---|---|---|---|---|---|
| | | | | 0 | 0.7080 | 342.443 |
| 1 | 0.41253 | 100.00 | 0.540 | | | |

REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

| | FUNC 1 |
|---|---|
| APLMO | -0.08772 |
| CLASS | 0.33864 |
| CUMGPA | -0.35977 |
| CUMHRS | 2.16323 |
| HREARN | -2.76678 |
| HSYR | 0.24622 |
| MAJR1 | 0.23788 |
| MAJTP1 | -0.32503 |
| MARITL | 0.06589 |
| PSEMHR | -0.60595 |
| SEX | 0.14997 |
| TRNGPA | -0.08789 |
| FACSCR2 | 0.77257 |

PREDICTION RESULTS -

| ACTUAL GROUP | NO. OF CASES | PREDICTED GROUP MEMBERSHIP GP. 1 | GP. 2 |
|---|---|---|---|
| GROUP 1 NON-RTRN | 236. | 114. | 122. |
| | | 48.3% | 51.7% |
| GROUP 2 RETURN | 764. | 57. | 707. |
| | | 7.5% | 92.5% |

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 82.10%

CENTROIDS OF GROUPS IN REDUCED SPACE

| | FUNC 1 |
|---|---|
| GROUP 1 NON-RTRN | 0.97181 |
| GROUP 2 RETURN | -0.30021 |

actually was only better by the movement of one of the group 2 cases from the predicted group 1 to the predicted group 2. Similarly, Table 8 shows that $r^2$, the coefficient of determination increased from only 29.17% to 29.45% with both factor scores included. It is interesting to note, however, that both factor scores had relatively high standarized beta values of 0.53 and 0.36.

The final runs of discriminant analysis and regression were made with dummy variables 'A' through 'D' added as independent variables. Also, application month and high school year of graduation were transformed as described above. As can be seen in Appendix C, these transformations improved the correlations between Return Status and Application Month from 0.015 to 0.268 and for High School Year of Graduation from 0.010 to -0.165. Also, in Appendix C it can be seen that there is an extremely high correlation (0.91) between Variable 'A' and Variable 'B' which suggests that those who apply in May, June, July, September, October or November, and who also take light credit loads are likely to have low GPA's. This may be due to the fact that audit students who are on campus primarily for enrichment usually apply late, take only one or two courses for which only half credit is counted, and do not receive grades which are computable in terms of a grade point average.

The results of the discriminant analysis run are summarized in Table 9. This shows that of the 12 variables selected, Application Month, High School Year of Graduation and Variables 'A', 'C' and 'D' were included. Cumulative GPA and Past Semester Hour had relatively high standardized coefficients, as well. Also of interest is the fact that Cumulative Hours, Hours Earned at Parkside, the two Factor Scores and Variable 'B' were not selected for inclusion. The distance between the resultant centroids was increased by 5% over the run with just Factor Scores included. The confusion matrix shows that there was a slight improvement in the overall proportion of correctly classified cases from 82.1% to 83.2%. At the same time, the proportion of correctly classified non-returners rose from 48.3% to 58.9%. However, the percentage of misclassified retuners also increased from 7.5% to 9.3%.

TABLE 8

STEPWISE MULTIPLE REGRESSION WITH FACTOR SCORES ADDED

* * * * * * * * * * * * * * * * * * * * * * * * * * MULTIPLE REGRESSION * * * * * * * * * * * * *  VARIABLE LIST 1
REGRESSION LIST 2

DEPENDENT VARIABLE.. RETURN NON-RETURN OR RETURN STATUS

SUMMARY TABLE

| VARIABLE | | MULTIPLE R | R SQUARE | RSQ CHANGE | SIMPLE R | B | BETA |
|---|---|---|---|---|---|---|---|
| PSEMHR | PAST SEMESTER HOURS | 0.41614 | 0.17318 | 0.17318 | 0.41614 | 0.01985 | 0.23669 |
| CUMGPA | CUMULATIVE GPA | 0.47823 | 0.22870 | 0.05553 | 0.27305 | 0.07013 | 0.15583 |
| CLASS | | 0.49286 | 0.24291 | 0.01421 | -0.21880 | -0.01406 | -0.04932 |
| MAJTP1 | PRIME MAJOR TYPE | 0.51130 | 0.26143 | 0.01852 | 0.24243 | 0.13283 | 0.15408 |
| HSYR | HIGH SCHOOL YEAR OF GRADUATION | 0.51776 | 0.26807 | 0.00664 | 0.01888 | -0.00679 | -0.23222 |
| MAJR1 | PRIME MAJOR | 0.52135 | 0.27180 | 0.00373 | -0.13600 | -0.00197 | -0.12423 |
| SEX | | 0.52498 | 0.27560 | 0.00380 | -0.04394 | -0.07599 | -0.08852 |
| TRNGPA | TRANSFER GPA | 0.52590 | 0.27657 | 0.00097 | 0.07686 | 0.00456 | 0.01470 |
| HREARN | HOURS EARNED AT UW-PKS | 0.52685 | 0.27757 | 0.00100 | 0.17974 | 0.01743 | 1.51659 |
| CUMHRS | HOURS FOR GPA | 0.53739 | 0.28879 | 0.01122 | 0.16000 | -0.01377 | -1.21215 |
| FACSCR2 | FACTOR2-TOTAL CREDIT HOURS | 0.53877 | 0.29028 | 0.00149 | 0.25739 | -0.14440 | -0.35976 |
| APLMO | APPLICATION MONTH | 0.53961 | 0.29118 | 0.00091 | 0.01540 | 0.00081 | 0.04567 |
| MARITL | MARITAL STATUS | 0.54047 | 0.29210 | 0.00092 | -0.13813 | 0.07253 | 0.07719 |
| PRES | PERMANENT RESIDENCY | 0.54112 | 0.29281 | 0.00071 | -0.02018 | -0.00058 | -0.01968 |
| HSPCT | HIGH SCHOOL PERCENTILE | 0.54157 | 0.29330 | 0.00049 | 0.27988 | -0.00136 | -0.10633 |
| RESFEE | RESIDENT FEE | 0.54169 | 0.29343 | 0.00012 | 0.01139 | 0.05344 | 0.02665 |
| AGE | | 0.54178 | 0.29353 | 0.00010 | -0.14504 | 0.00928 | 0.16610 |
| FACSCR1 | FACTOR1-AGE&PSEMHR | 0.54225 | 0.29404 | 0.00051 | -0.30567 | -0.21362 | -0.53442 |
| TRANHR | TRANSFER HOURS | 0.54264 | 0.29446 | 0.00042 | 0.03287 | 0.00082 | 0.04031 |
| RACE | | 0.54268 | 0.29450 | 0.00003 | 0.03149 | -0.00697 | -0.00637 |
| (CONSTANT) | | | | | | 1.54812 | |

TABLE 9

STEPWISE DISCRIMINANT ANALYSIS WITH FACTOR SCORES AND DUMMY VARIABLES ADDED

| DISCRIMINANT FUNCTION | EIGENVALUE | RELATIVE PERCENTAGE | CANONICAL CORRELATION | FUNCTIONS DERIVED | WILKS' LAMBDA | CHI-SQUARE |
|---|---|---|---|---|---|---|
| | | | | 0 | 0.6777 | 385.943 |
| 1 | 0.47559 | 100.00 | 0.568 | | | |



REMAINING COMPUTATIONS WILL BE BASED ON 1 DISCRIMINANT FUNCTION(S)

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

| | FUNC 1 |
|---|---|
| AGE | -0.06110 |
| APLMO | -0.23715 |
| CLASS | 0.15780 |
| CUMGPA | -0.31134 |
| HSYR | 0.28793 |
| MAJR1 | 0.11843 |
| MAJTP1 | -0.07017 |
| PSEMHR | -0.31482 |
| SEX | 0.08239 |
| VARAA | 0.11641 |
| VARAC | -0.31407 |
| VARAD | -0.28201 |

PREDICTION RESULTS -

| ACTUAL GROUP | NO. OF CASES | PREDICTED GROUP MEMBERSHIP GP. 1 | GP. 2 |
|---|---|---|---|
| GROUP 1 NON-RTRN | 236. | 139. | 97. |
| | | 58.9% | 41.1% |
| GROUP 2 RETURN | 764. | 71. | 693. |
| | | 9.3% | 90.7% |

PERCENT OF "GROUPED" CASES CORRECTLY CLASSIFIED: 83.20%

CENTROIDS OF GROUPS IN REDUCED SPACE

| | FUNC 1 |
|---|---|
| GROUP 1 NON-RTRN | 1.02094 |
| GROUP 2 RETURN | -0.31538 |

Table 10 shows the results of the regression run with the dummy variables included. While these variables were of importance, as evidenced by their relatively high beta weights, $r^2$ increased to only 33 percent.

## CONCLUSIONS

The initial set of demographic variables chosen provided only limited predictive capabilities for estimating the likelihood of a student not returning in the Spring after having completed the Fall semester. Discriminant analysis of these 19 variables resulted in less than a fifty-fifty chance of correctly predicting whether an actual non-returning student would really fail to return. Enhancement measures, in the form of two factor scores, four dummy variables pertaining to interrelations uncovered via AID, and two transformations of initial variables, were put into effect. Even so, the resultant discriminant function, while it yielded an 83% percentage of correctly classified cases across the entire sample, could do no better than correctly predicting 59% of the non-returning students. Similarly, a regression function accounted for only 33% of the variance in the dependent variable, return status.

Improvement in these rates would evidently require the addition of such subjective information about each student as attitudes or educational goals. Additional demographic data pertaining to such items as hours worked per week or financially related information, which were not available for this study, might also be relevent for the improvement of the predictive ability of these methodologies.

Given the current retention patterns at UW-Parkside and the desire to improve upon them, it is possible that even this much of an aid in differentiating between students who are likely to stay and those who are likely to leave may be of some help to the campus. It is possible that contact with the students so identified, either by mail or hopefully in person, could help to avert their probable decision to leave UW-Parkside. In fact, if it turned out that identification of 14% of the

TABLE 10

STEPWISE MULTIPLE REGRESSION WITH FACTOR SCORES AND DUMMY VARIABLES ADDED

* * * * * * * * * * * * * * * * * * * * * * * * * MULTIPLE REGRESSION * * * * * * * * * * * * VARIABLE LIST 1
REGRESSION LIST

DEPENDENT VARIABLE.. RETURN NON-RETURN OR RETURN STATUS

SUMMARY TABLE

| VARIABLE | | MULTIPLE R | R SQUARE | RSQ CHANGE | SIMPLE R | B | BETA |
|---|---|---|---|---|---|---|---|
| VARAC | PSEMHR&CUMGPA&CLASS | 0.48360 | 0.23387 | 0.23387 | 0.48360 | 0.13211 | 0.14978 |
| CUMGPA | CUMULATIVE GPA | 0.50741 | 0.25746 | 0.02359 | 0.27305 | 0.07410 | 0.16464 |
| PSEMHR | PAST SEMESTER HOURS | 0.51126 | 0.26224 | 0.02477 | 0.41614 | 0.01993 | 0.23763 |
| APLMO | APPLICATION MONTH | 0.54640 | 0.29855 | 0.01631 | 0.26832 | 0.02508 | 0.14521 |
| MAJR1 | PRIME MAJOR | 0.54990 | 0.30239 | 0.00384 | -0.13600 | -0.00178 | -0.11250 |
| CLASS | | 0.55358 | 0.30645 | 0.00405 | -0.21880 | -0.02776 | -0.09716 |
| AGE | | 0.55531 | 0.30837 | 0.00193 | -0.14504 | 0.00184 | 0.03252 |
| HSYR | HIGH SCHOOL YEAR OF GRADUATION | 0.55695 | 0.31020 | 0.00182 | -0.16504 | -0.02958 | -0.17318 |
| VARAD | PSEMHR&CUMGPA&CLASS&HSYR | 0.56326 | 0.31726 | 0.00706 | 0.23491 | 0.14188 | 0.16167 |
| SEX | | 0.56511 | 0.31934 | 0.00208 | -0.04394 | -0.05350 | -0.06232 |
| VARAA | PSEMHR&APLMO | 0.56677 | 0.32123 | 0.00189 | 0.34356 | -0.09858 | -0.11316 |
| MAJTP1 | PRIME MAJOR TYPE | 0.56773 | 0.32231 | 0.00108 | 0.24243 | 0.10121 | 0.11740 |
| PRES | PERMANENT RESIDENCY | 0.56831 | 0.32298 | 0.00067 | -0.02018 | -0.00117 | -0.03940 |
| RESFEE | RESIDENT FEE | 0.56893 | 0.32369 | 0.00071 | 0.01139 | 0.03218 | 0.01605 |
| TRNGPA | TRANSFER GPA | 0.56925 | 0.32404 | 0.00036 | 0.07686 | 0.01110 | 0.03583 |
| HSPCT | HIGH SCHOOL PERCENTILE | 0.56960 | 0.32444 | 0.00040 | 0.27988 | -0.00004 | -0.00285 |
| VET | VETERAN STATUS | 0.56986 | 0.32474 | 0.00030 | 0.01819 | 0.00592 | 0.01269 |
| VARAB | PSEMHR&APLMO&CUMGPA | 0.57005 | 0.32495 | 0.00021 | 0.38517 | 0.03744 | 0.04373 |
| FACSCR1 | FACTOR1-AGE&PSEMHR | 0.57022 | 0.32515 | 0.00020 | -0.30567 | 0.01399 | 0.03500 |
| HREARN | HOURS EARNED AT UW-PKS | 0.57038 | 0.32533 | 0.00018 | 0.17974 | 0.01065 | 0.92823 |
| CUMHRS | HOURS FOR GPA | 0.57448 | 0.33002 | 0.00469 | 0.16000 | -0.00771 | -0.67892 |
| FACSCR2 | FACTOR2-TOTAL CREDIT HOURS | 0.57619 | 0.33199 | 0.00197 | 0.25739 | -0.13220 | -0.32936 |
| MARITL | MARITAL STATUS | 0.57636 | 0.33219 | 0.00020 | -0.13813 | -0.02539 | -0.02702 |
| RACE | | 0.57639 | 0.33222 | 0.00004 | 0.03149 | -0.00708 | -0.00647 |
| (CONSTANT) | | | | | | 1.55147 | |

student body who may be likely to leave the campus at mid-term, could help to alter the plans of even half of them, retention rates would be considerably improved.

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# APPENDIX A

CROSS TABS OF RETURN STATUS

VERSUS

INDEPENDENT VARIABLES "APLMO" THROUGH "FACSCR2"

FILE RTN18 (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY APLMO APPLICATION MONTH
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

APLMO

| RETURN | COUNT / ROW PCT / COL PCT / TOT PCT | 1-2 (1) | 3-4 (2) | 5 (3) | 6-7 (4) | 8 (5) | 9-10 (6) | 11 (7) | 12 (8) | UNKWN (9) | ROW TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 NON-RTRN | COUNT | 25 | 13 | 12 | 27 | 40 | 96 | 6 | 7 | 10 | 236 |
| | ROW PCT | 10.6 | 5.5 | 5.1 | 11.4 | 16.9 | 40.7 | 2.5 | 3.0 | 4.2 | 23.6 |
| | COL PCT | 16.0 | 12.5 | 19.7 | 14.4 | 27.0 | 54.2 | 18.8 | 14.0 | 11.8 | |
| | TOT PCT | 2.5 | 1.3 | 1.2 | 2.7 | 4.0 | 9.6 | 0.6 | 0.7 | 1.0 | |
| 2 RETURN | COUNT | 131 | 91 | 49 | 160 | 108 | 81 | 26 | 43 | 75 | 764 |
| | ROW PCT | 17.1 | 11.9 | 6.4 | 20.9 | 14.1 | 10.6 | 3.4 | 5.6 | 9.8 | 76.4 |
| | COL PCT | 84.0 | 87.5 | 80.3 | 85.6 | 73.0 | 45.8 | 81.3 | 86.0 | 88.2 | |
| | TOT PCT | 13.1 | 9.1 | 4.9 | 16.0 | 10.8 | 8.1 | 2.6 | 4.3 | 7.5 | |
| COLUMN TOTAL | | 156 | 104 | 61 | 187 | 148 | 177 | 32 | 50 | 85 | 1000 |
| | | 15.6 | 10.4 | 6.1 | 18.7 | 14.8 | 17.7 | 3.2 | 5.0 | 8.5 | 100.0 |

RAW CHI SQUARE = 123.98239 WITH 8 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0
LAMBDA (ASYMMETRIC) = 0.06356 WITH RETURN DEPENDENT. = 0.08487 WITH APLMO DEPENDENT.
LAMBDA (SYMMETRIC) = 0.08008
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.10294 WITH RETURN DEPENDENT. = 0.02720 WITH APLMO D
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.04303

RUN CROSSTABS AND PUNCH CARDS FOR AID3 03/29/77

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY CLASS

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

A-2

| | | CLASS | | | | | |
|---|---|---|---|---|---|---|---|
| | COUNT / ROW PCT / COL PCT / TOT PCT | 1 FRSH | 2 SOPH | 3 JUNR | 4 SENR | 5 SPCL | ROW TOTAL |
| RETURN | | | | | | | |
| 1 NON-RTRN | COUNT | 50 | 39 | 15 | 27 | 105 | 236 |
| | ROW PCT | 21.2 | 16.5 | 6.4 | 11.4 | 44.5 | 23.6 |
| | COL PCT | 18.5 | 18.8 | 11.3 | 13.5 | 55.6 | |
| | TOT PCT | 5.0 | 3.9 | 1.5 | 2.7 | 10.5 | |
| 2 RETURN | COUNT | 221 | 168 | 118 | 173 | 84 | 764 |
| | ROW PCT | 28.9 | 22.0 | 15.4 | 22.6 | 11.0 | 76.4 |
| | COL PCT | 81.5 | 81.2 | 88.7 | 86.5 | 44.4 | |
| | TOT PCT | 22.1 | 16.8 | 11.8 | 17.3 | 8.4 | |
| COLUMN TOTAL | | 271 | 207 | 133 | 200 | 189 | 1000 |
| | | 27.1 | 20.7 | 13.3 | 20.0 | 18.9 | 100.0 |

RAW CHI SQUARE = 136.14215 WITH 4 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0

LAMBDA (ASYMMETRIC) = 0.08898 WITH RETURN DEPENDENT. = 0.07545 WITH CLASS DEPENDENT.

LAMBDA (SYMMETRIC) = 0.07876

UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.11133 WITH RETURN DEPENDENT. = 0.03838 WITH CLASS

UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.05708

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY CUMGPA CUMULATIVE GPA
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

| | | CUMGPA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | COUNT I | | | | | | | | | |
| | ROW PCT I | 0.00-0.4 | 0.50-0.9 | 1.00-1.4 | 1.50-1.9 | 2.00-2.4 | 2.50-2.9 | 3.00-3.4 | 3.50-4.0 | ROW |
| | COL PCT I | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | TOTAL |
| | TOT PCT I | 1 I | 2 I | 3 I | 4 I | 5 I | 6 I | 7 I | 8 I | |
| RETURN | | | | | | | | | | |
| 1 | I | 43 I | 10 I | 19 I | 22 I | 35 I | 40 I | 34 I | 33 I | 236 |
| NON-RTRN | I | 18.2 I | 4.2 I | 8.1 I | 9.3 I | 14.8 I | 16.9 I | 14.4 I | 14.0 I | 23.6 |
| | I | 81.1 I | 50.0 I | 47.5 I | 22.4 I | 15.6 I | 18.3 I | 18.2 I | 20.9 I | |
| | I | 4.3 I | 1.0 I | 1.9 I | 2.2 I | 3.5 I | 4.0 I | 3.4 I | 3.3 I | |
| 2 | I | 10 I | 10 I | 21 I | 76 I | 190 I | 179 I | 153 I | 125 I | 764 |
| RETURN | I | 1.3 I | 1.3 I | 2.7 I | 9.9 I | 24.9 I | 23.4 I | 20.0 I | 16.4 I | 76.4 |
| | I | 18.9 I | 50.0 I | 52.5 I | 77.6 I | 84.4 I | 81.7 I | 81.8 I | 79.1 I | |
| | I | 1.0 I | 1.0 I | 2.1 I | 7.6 I | 19.0 I | 17.9 I | 15.3 I | 12.5 I | |
| COLUMN | | 53 | 20 | 40 | 98 | 225 | 219 | 187 | 158 | 1000 |
| TOTAL | | 5.3 | 2.0 | 4.0 | 9.8 | 22.5 | 21.9 | 18.7 | 15.8 | 100.0 |

RAW CHI SQUARE = 132.99278 WITH 7 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0
LAMBDA (ASYMMETRIC) = 0.13983 WITH RETURN DEPENDENT. = 0.01032 WITH CUMGPA DEPENDENT.
LAMBDA (SYMMETRIC) = 0.04055
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.10256 WITH RETURN DEPENDENT. = 0.03007 WITH CUMGPA
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.04651

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY CUMHRS HOURS FOR GPA

CUMHRS

| RETURN | COUNT / ROW PCT / COL PCT / TOT PCT | 1-3 | 3-6 | 6-12 | 12-25 | 25-58 | 58-86 | 86&+ | ROW TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 60 | 18 | 37 | 38 | 39 | 20 | 24 | 236 |
| NON-RTRN | | 25.4 | 7.6 | 15.7 | 16.1 | 16.5 | 8.5 | 10.2 | 23.6 |
| | | 68.2 | 40.0 | 27.6 | 17.8 | 15.4 | 15.6 | 17.3 | |
| | | 6.0 | 1.8 | 3.7 | 3.8 | 3.9 | 2.0 | 2.4 | |
| 2 | | 28 | 27 | 97 | 175 | 214 | 108 | 115 | 764 |
| RETURN | | 3.7 | 3.5 | 12.7 | 22.9 | 28.0 | 14.1 | 15.1 | 76.4 |
| | | 31.8 | 60.0 | 72.4 | 82.2 | 84.6 | 84.4 | 82.7 | |
| | | 2.8 | 2.7 | 9.7 | 17.5 | 21.4 | 10.8 | 11.5 | |
| COLUMN TOTAL | | 88 | 45 | 134 | 213 | 253 | 128 | 139 | 1000 |
| | | 8.8 | 4.5 | 13.4 | 21.3 | 25.3 | 12.8 | 13.9 | 100.0 |

RAW CHI SQUARE = 125.84070 WITH 6 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0
LAMBDA (ASYMMETRIC) = 0.13559 WITH RETURN DEPENDENT. = 0.02811 WITH CUMHRS DEPENDENT.
LAMBDA (SYMMETRIC) = 0.05392
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.09895 WITH RETURN DEPENDENT. = 0.02943 WITH CUMHRS
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.04537

RUN CROSSTABS AND PUNCH CARDS FOR AIDS 03/29/77 PAGE

FILE RTN18 (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY HREARN HOURS EARNED AT UW-PKS
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE

| | HREARN | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| COUNT / ROW PCT / COL PCT / TOT PCT | 1 1-3 | 2 3-6 | 3 6-12 | 4 12-25 | 5 25-58 | 6 58-86 | 7 86&+ | 8 NONE | ROW TOTAL |
| RETURN 1 NON-RTRN | 43 | 17 | 27 | 32 | 40 | 17 | 21 | 39 | 236 |
| | 18.2 | 7.2 | 11.4 | 13.6 | 16.9 | 7.2 | 8.9 | 16.5 | 23.6 |
| | 60.6 | 32.7 | 21.3 | 16.2 | 16.1 | 13.4 | 16.2 | 84.8 | |
| | 4.3 | 1.7 | 2.7 | 3.2 | 4.0 | 1.7 | 2.1 | 3.9 | |
| 2 RETURN | 28 | 35 | 100 | 166 | 209 | 110 | 109 | 7 | 764 |
| | 3.7 | 4.6 | 13.1 | 21.7 | 27.4 | 14.4 | 14.3 | 0.9 | 76.4 |
| | 39.4 | 67.3 | 78.7 | 83.8 | 83.9 | 86.6 | 83.8 | 15.2 | |
| | 2.8 | 3.5 | 10.0 | 16.6 | 20.9 | 11.0 | 10.9 | 0.7 | |
| COLUMN TOTAL | 71 7.1 | 52 5.2 | 127 12.7 | 198 19.8 | 249 24.9 | 127 12.7 | 130 13.0 | 46 4.6 | 1000 100.0 |

RAW CHI SQUARE = 177.35720 WITH 7 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0
LAMBDA (ASYMMETRIC) = 0.19915 WITH RETURN DEPENDENT. = 0.00399 WITH HREARN DEPENDENT.
LAMBDA (SYMMETRIC) = 0.05066
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.13874 WITH RETURN DEPENDENT. = 0.03909 WITH HREARN
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.06100





A-5

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY HSPCT HIGH SCHOOL PERCENTILE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE

A-6

| | | HSPCT | | | | | |
|---|---|---|---|---|---|---|---|
| | COUNT / ROW PCT / COL PCT / TOT PCT | 1 1ST QRTILE | 2 2ND QRTILE LE | 3 3RD QRTILE LE | 4 4TH QRTILE LE | 8 UNKNOWN | ROW TOTAL |
| RETURN | | | | | | | |
| 1 | | 91 | 30 | 31 | 22 | 62 | 236 |
| NON-RTRN | | 38.6 | 12.7 | 13.1 | 9.3 | 26.3 | 23.6 |
| | | 28.4 | 24.8 | 16.9 | 8.6 | 51.7 | |
| | | 9.1 | 3.0 | 3.1 | 2.2 | 6.2 | |
| 2 | | 229 | 91 | 152 | 234 | 58 | 764 |
| RETURN | | 30.0 | 11.9 | 19.9 | 30.6 | 7.6 | 76.4 |
| | | 71.6 | 75.2 | 83.1 | 91.4 | 48.3 | |
| | | 22.9 | 9.1 | 15.2 | 23.4 | 5.8 | |
| COLUMN TOTAL | | 320 32.0 | 121 12.1 | 183 18.3 | 256 25.6 | 120 12.0 | 1000 100.0 |

RAW CHI SQUARE = 93.15077 WITH 4 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0000
LAMBDA (ASYMMETRIC) = 0.01695 WITH RETURN DEPENDENT. = 0.00735 WITH HSPCT DEPENDENT.
LAMBDA (SYMMETRIC) = 0.00983
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.08460 WITH RETURN DEPENDENT. = 0.03013 WITH HSPCT
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.04443

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY HSYR HIGH SCHOOL YEAR OF GRADUATION
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE

| | HSYR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| COUNT / ROW PCT / COL PCT / TOT PCT | 1 | 2 | 3 | 4 | 5 | 6-10 | 10+ | CONCRNT | UNKN | | ROW TOTAL |
| RETURN | | | | | | | | | | | |
| 1 | 23 | 27 | 14 | 15 | 12 | 64 | 76 | 2 | 3 | | 236 |
| NON-RTRN | 9.7 | 11.4 | 5.9 | 6.4 | 5.1 | 27.1 | 32.2 | 0.8 | 1.3 | | 23.6 |
| | 13.8 | 22.5 | 12.0 | 16.3 | 19.7 | 33.5 | 31.8 | 40.0 | 37.5 | | |
| | 2.3 | 2.7 | 1.4 | 1.5 | 1.2 | 6.4 | 7.6 | 0.2 | 0.3 | | |
| 2 | 144 | 93 | 103 | 77 | 49 | 127 | 163 | 3 | 5 | | 764 |
| RETURN | 18.8 | 12.2 | 13.5 | 10.1 | 6.4 | 16.6 | 21.3 | 0.4 | 0.7 | | 76.4 |
| | 86.2 | 77.5 | 88.0 | 83.7 | 80.3 | 66.5 | 68.2 | 60.0 | 62.5 | | |
| | 14.4 | 9.3 | 10.3 | 7.7 | 4.9 | 12.7 | 16.3 | 0.3 | 0.5 | | |
| COLUMN TOTAL | 167 | 120 | 117 | 92 | 61 | 191 | 239 | 5 | 8 | | 1000 |
| | 16.7 | 12.0 | 11.7 | 9.2 | 6.1 | 19.1 | 23.9 | 0.5 | 0.8 | | 100.0 |

RAW CHI SQUARE = 41.95999 WITH 8 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0000
LAMBDA (ASYMMETRIC) = 0.0 WITH RETURN DEPENDENT. = 0.0 WITH HSYR DEPENDENT.
LAMBDA (SYMMETRIC) = 0.0
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.03950 WITH RETURN DEPENDENT. = 0.01126 WITH HSYR
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.01752

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY MAJR1 PRIME MAJOR

* * * * * * * * * * * * * * * * * * * \

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY MAJTP1 PRIME MAJOR TYPE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE

| | | MAJTP1 | | |
|---|---|---|---|---|
| | COUNT / ROW PCT / COL PCT / TOT PCT | AREA 1 | DECLRD 2 | ROW TOTAL |
| RETURN | | | | |
| 1 | | 189 | 47 | 236 |
| NON-RTRN | | 80.1 | 19.9 | 23.6 |
| | | 32.3 | 11.4 | |
| | | 18.9 | 4.7 | |
| 2 | | 397 | 367 | 764 |
| RETURN | | 52.0 | 48.0 | 76.4 |
| | | 67.7 | 88.6 | |
| | | 39.7 | 36.7 | |
| COLUMN TOTAL | | 586 58.6 | 414 41.4 | 1000 100.0 |

CORRECTED CHI SQUARE = 57.61998 WITH 1 DEGREE OF FREEDOM. SIGNIFICANCE = 0.0000
LAMBDA (ASYMMETRIC) = 0.0 WITH RETURN DEPENDENT. = 0.0 WITH MAJTP1 DEPENDENT.
LAMBDA (SYMMETRIC) = 0.0
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.05763 WITH RETURN DEPENDENT. = 0.04642 WITH MAJTP1
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.05142

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY MARITL MARITAL STATUS

* * * * * * * * * * * * * * * * * * * \

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY PRES PERMANENT RESIDENCY

* * * * * * * * * * * * * * * * * * * \

FILE RTN18 (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY PSEMHR PAST SEMESTER HOURS
* * * * * * * * * * * * * * * * * * * \

RUN CROSSTABS AND PUNCH CARDS FOR AID3 03/29/77 PAGE

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY RACE

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE

| | | RACE | | | |
|---|---|---|---|---|---|
| | COUNT / ROW PCT / COL PCT / TOT PCT | WHITE 1 | BLACK 2 | OTHER 3 | ROW TOTAL |
| RETURN 1 | | 222 | 9 | 5 | 236 |
| NON-RTRN | | 94.1 | 3.8 | 2.1 | 23.6 |
| | | 23.4 | 28.1 | 26.3 | |
| | | 22.2 | 0.9 | 0.5 | |
| 2 | | 727 | 23 | 14 | 764 |
| RETURN | | 95.2 | 3.0 | 1.8 | 76.4 |
| | | 76.6 | 71.9 | 73.7 | |
| | | 72.7 | 2.3 | 1.4 | |
| COLUMN TOTAL | | 949 | 32 | 19 | 1000 |
| | | 94.9 | 3.2 | 1.9 | 100.0 |

RAW CHI SQUARE = 0.46366 WITH 2 DEGREES OF FREEDOM. SIGNIFICANCE = 0.7931
LAMBDA (ASYMMETRIC) = 0.0 WITH RETURN DEPENDENT. = 0.0 WITH RACE DEPENDENT.
LAMBDA (SYMMETRIC) = 0.0
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.00041 WITH RETURN DEPENDENT. = 0.00095 WITH RACE
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.00057

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY RESFEE RESIDENT FEE

* * * * * * * * * * * * * * * * * * * \

RUN CROSSTABS AND PUNCH CARDS FOR AID3 03/29/77 PAGE

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY SEX

* * * * * * * * * * * * * * * * * * * \

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY TRANHR TRANSFER HOURS

* * * * * * * * * * * * * * * * * * * \

RUN CROSSTABS AND PUNCH CARDS FOR AID3 03/29/77 PAGE

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY TRNGPA TRANSFER GPA

* * * * * * * * * * * * * * * * * * * \

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY VET VETERAN STATUS

* * * * * * * * * * * * * * * * * * * \

RUN CROSSTABS AND PUNCH CARDS FOR AID4 03/29/77 PAGE

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * * *

RETURN NON-RETURN OR RETURN STATUS BY FACSCR1 FACTOR1-AGE&PSEMHR

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE

| | FACSCR1 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| COUNT / ROW PCT / COL PCT / TOT PCT | -2.5TO-1 | -1TO-.5 | -.5TO-.2 | -.25TO0 | 0TO.25 | .25TO.5 | .5TO1 | 1TO2.5 | 2.5TO999 | ROW TOTAL |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| RETURN 1 | 12 | 35 | 15 | 19 | 19 | 13 | 36 | 77 | 10 | 236 |
| NON-RTRN | 5.1 | 14.8 | 6.4 | 8.1 | 8.1 | 5.5 | 15.3 | 32.6 | 4.2 | 23.6 |
| | 6.4 | 15.4 | 24.6 | 22.4 | 24.7 | 22.4 | 35.3 | 41.4 | 62.5 | |
| | 1.2 | 3.5 | 1.5 | 1.9 | 1.9 | 1.3 | 3.6 | 7.7 | 1.0 | |
| 2 | 175 | 193 | 46 | 66 | 58 | 45 | 66 | 109 | 6 | 764 |
| RETURN | 22.9 | 25.3 | 6.0 | 8.6 | 7.6 | 5.9 | 8.6 | 14.3 | 0.8 | 76.4 |
| | 93.6 | 84.6 | 75.4 | 77.6 | 75.3 | 77.6 | 64.7 | 58.6 | 37.5 | |
| | 17.5 | 19.3 | 4.6 | 6.6 | 5.8 | 4.5 | 6.6 | 10.9 | 0.6 | |
| COLUMN TOTAL | 187 18.7 | 228 22.8 | 61 6.1 | 85 8.5 | 77 7.7 | 58 5.8 | 102 10.2 | 186 18.6 | 16 1.6 | 1000 100.0 |

RAW CHI SQUARE = 93.26886 WITH 8 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0000

LAMBDA (ASYMMETRIC) = 0.01695 WITH RETURN DEPENDENT. = 0.05440 WITH FACSCR1 DEPENDENT.

LAMBDA (SYMMETRIC) = 0.04563

UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.08797 WITH RETURN DEPENDENT. = 0.02397 WITH FACSCR1 D

UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.03768

FILE RTN13 (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

* * * * * * * * * * * * * * * * * * * * CROSSTABULATION OF * * * * * * * * * * * * * * * * * * * *
RETURN NON-RETURN OR RETURN STATUS BY FACSCR2 FACTOR2-TOTAL CREDIT HOURS
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE A-20

| | | FACSCR2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | COUNT / ROW PCT / COL PCT / TOT PCT | -2.5TO-1 (1) | -1TO-.5 (2) | -.5TO-.2 (3) | -.25TO0 (4) | 0TO.25 (5) | .25TO.5 (6) | .5TO1 (7) | 1TO2.5 (8) | 2.5TO999 (9) | ROW TOTAL |
| RETURN | | | | | | | | | | | |
| 1 | | 89 | 68 | 16 | 17 | 3 | 7 | 9 | 26 | 1 | 236 |
| NON-RTRN | | 37.7 | 28.8 | 6.8 | 7.2 | 1.3 | 3.0 | 3.8 | 11.0 | 0.4 | 23.6 |
| | | 49.2 | 28.5 | 18.2 | 18.5 | 5.4 | 12.5 | 10.2 | 14.4 | 5.3 | |
| | | 8.9 | 6.8 | 1.6 | 1.7 | 0.3 | 0.7 | 0.9 | 2.6 | 0.1 | |
| 2 | | 92 | 171 | 72 | 75 | 53 | 49 | 79 | 155 | 18 | 764 |
| RETURN | | 12.0 | 22.4 | 9.4 | 9.8 | 6.9 | 6.4 | 10.3 | 20.3 | 2.4 | 76.4 |
| | | 50.8 | 71.5 | 81.8 | 81.5 | 94.6 | 87.5 | 89.8 | 85.6 | 94.7 | |
| | | 9.2 | 17.1 | 7.2 | 7.5 | 5.3 | 4.9 | 7.9 | 15.5 | 1.8 | |
| COLUMN TOTAL | | 181 | 239 | 88 | 92 | 56 | 56 | 88 | 181 | 19 | 1000 |
| | | 18.1 | 23.9 | 8.8 | 9.2 | 5.6 | 5.6 | 8.8 | 18.1 | 1.9 | 100.0 |

RAW CHI SQUARE = 106.52946 WITH 8 DEGREES OF FREEDOM. SIGNIFICANCE = 0.0
LAMBDA (ASYMMETRIC) = 0.0 WITH RETURN DEPENDENT. = 0.02760 WITH FACSCR2 DEPENDENT.
LAMBDA (SYMMETRIC) = 0.02106
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.09566 WITH RETURN DEPENDENT. = 0.02605 WITH FACSCR2 D
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.04095

APPENDIX B

DETAIL OUTPUT OF AID FOR SPLIT OF GROUP 1

LOCKAHEAD TENTATIVE PARTITION

SPLIT ATTEMPTED ON GROUP 1 WITH N = 1000, SS = 1.603040+02
SUMS- W = 1.000000+03, Y = 1.764000+00, YSQ = 3.292000+03, X =

PREDICTOR AGE
6 NON-EMPTY CLASSES 1 8 6 7 3 5 4 2

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 1 | 12 | 1.200000+01 | 1.416667+00 | 2.65152-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 8 | 988 | 9.880000+02 | 1.762024+00 | 1.76239-01 | 0.00000 | 0.00000 | 0.00000 | 1.46524+00 |
| BETWEEN | 8 | 12 | 1.200000+02 | 1.591675+00 | 2.43092-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 6 | 976 | 8.960000+02 | 1.773435+00 | 1.69827-01 | 0.00000 | 0.00000 | 0.00000 | 3.26996+00 |
| BETWEEN | 6 | 28 | 2.800000+02 | 1.640911+00 | 2.31196-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 948 | 7.880000+02 | 1.798726+00 | 1.60974-01 | 0.00000 | 0.00000 | 0.00000 | 4.27344+00 |
| BETWEEN | 7 | 436 | 4.360000+02 | 1.660743+00 | 2.22477-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 3 | 564 | 5.640000+02 | 1.838965+00 | 1.35555-01 | 0.00000 | 0.00000 | 0.00000 | 7.20911+00 |
| BETWEEN | 3 | 551 | 5.510000+02 | 1.693226+00 | 2.13028-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 5 | 449 | 4.490000+02 | 1.850726+00 | 1.27237-01 | 0.00000 | 0.00000 | 0.00000 | 6.13660+00 |
| BETWEEN | 5 | 735 | 7.350000+02 | 1.730611+00 | 1.97086-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 265 | 2.650000+02 | 1.856600+00 | 1.23299-01 | 0.00000 | 0.00000 | 0.00000 | 3.09180+00 |
| BETWEEN | 4 | 957 | 6.570000+02 | 1.747966+00 | 1.86737-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 2 | 143 | 1.430000+02 | 1.860140+00 | 1.21147-01 | 0.00000 | 0.00000 | 0.00000 | 1.54224+00 |

BEST SPLIT ON PREDICTOR 3 = 7.209106+00 AFTER CLASS 7

PREDICTOR APPLICATION MONTH
9 NON-EMPTY CLASSES 6 5 3 7 1 4 8 2 9

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 6 | 177 | 1.770000+02 | 1.457634+00 | 2.49615-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 5 | 823 | 8.230000+02 | 1.829894+00 | 1.41344-01 | 0.00000 | 0.00000 | 0.00000 | 2.01871+01 |
| BETWEEN | 5 | 325 | 3.250000+02 | 1.581544+00 | 2.44103-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 3 | 675 | 6.750000+02 | 1.851854+00 | 1.26388-01 | 0.00000 | 0.00000 | 0.00000 | 1.60295+01 |
| BETWEEN | 3 | 386 | 3.860000+02 | 1.616534+00 | 2.37023-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 614 | 6.140000+02 | 1.856684+00 | 1.22981-01 | 0.00000 | 0.00000 | 0.00000 | 1.36625+01 |
| BETWEEN | 7 | 418 | 4.180000+02 | 1.631584+00 | 2.33245-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 1 | 582 | 5.820000+02 | 1.859114+00 | 1.21251-01 | 0.00000 | 0.00000 | 0.00000 | 1.25941+01 |
| BETWEEN | 1 | 574 | 5.740000+02 | 1.685814+00 | 2.14973-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 426 | 4.260000+02 | 1.866204+00 | 1.16172-01 | 0.00000 | 0.00000 | 0.00000 | 7.75128+00 |
| BETWEEN | 4 | 761 | 7.610000+02 | 1.729304+00 | 1.97660-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 9 | 239 | 2.390000+02 | 1.874494+00 | 1.10228-01 | 0.00000 | 0.00000 | 0.00000 | 3.83313+00 |
| BETWEEN | 9 | 811 | 8.110000+02 | 1.737364+00 | 1.93899-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 2 | 189 | 1.890000+02 | 1.879314+00 | 1.07452-01 | 0.00000 | 0.00000 | 0.00000 | 3.04495+00 |
| BETWEEN | 2 | 915 | 9.150000+02 | 1.753014+00 | 1.86192-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 9 | 85 | 8.500000+01 | 1.862354+00 | 1.05042-01 | 0.00000 | 0.00000 | 0.00000 | 1.30121+00 |

BEST SPLIT ON PREDICTOR 4 = 2.018707+01 AFTER CLASS 6

PREDICTOR CLASS
5 NON-EMPTY CLASSES 5 2 1 4 3

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 5 | 189 | 1.890000+02 | 1.444444+00 | 2.46227-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 2 | 811 | 8.110000+02 | 1.783947+00 | 1.35605-01 | 0.00000 | 0.00000 | 0.00000 | 2.37976+01 |
| BETWEEN | 2 | 396 | 3.960000+02 | 1.636364+00 | 2.31991-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 1 | 604 | 6.040000+02 | 1.847682+00 | 1.29331-01 | 0.00000 | 0.00000 | 0.00000 | 1.06808+01 |
| BETWEEN | 1 | 667 | 6.670000+02 | 1.791914+00 | 2.06568-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 337 | 3.330000+02 | 1.872837+00 | 1.16550-01 | 0.00000 | 0.00000 | 0.00000 | 6.02707+00 |
| BETWEEN | 4 | 867 | 8.670000+02 | 1.748514+00 | 1.90146-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 3 | 133 | 1.330000+02 | 1.887234+00 | 1.00820-01 | 0.00000 | 0.00000 | 0.00000 | 2.32901+00 |

BEST SPLIT ON PREDICTOR 5 = 2.379758+01 AFTER CLASS 5

PREDICTOR CUMULATIVE GPA
7 NON-EMPTY CLASSES 1 2 3 4 8 6 7 5

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 1 | 53 | 5.30000+01 | 1.13868+00 | 1.56023-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 2 | 947 | 9.47000+02 | 1.79620+00 | 1.62438-01 | 0.00000 | 0.00000 | 0.00000 | 1.85244+01 |
| BETWEEN | 2 | 73 | 7.30000+01 | 1.27397+00 | 2.01674-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 3 | 927 | 9.27000+02 | 1.80259+00 | 1.58611-01 | 0.00000 | 0.00000 | 0.00000 | 1.89096+01 |
| BETWEEN | 3 | 113 | 1.13000+02 | 1.36283+00 | 2.33249-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 887 | 8.87000+02 | 1.81511+00 | 1.50878-01 | 0.00000 | 0.00000 | 0.00000 | 2.05025+01 |
| BETWEEN | 4 | 211 | 2.11000+02 | 1.55456+00 | 2.48206-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 789 | 7.89000+02 | 1.82803+00 | 1.47771-01 | 0.00000 | 0.00000 | 0.00000 | 1.17372+01 |
| BETWEEN | 7 | 369 | 3.69000+02 | 1.65583+00 | 2.26331-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 6 | 631 | 6.31000+02 | 1.82726+00 | 1.43129-01 | 0.00000 | 0.00000 | 0.00000 | 6.84286+00 |
| BETWEEN | 6 | 588 | 5.88000+02 | 1.71599+00 | 2.03696-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 412 | 4.12000+02 | 1.83253+00 | 1.39767-01 | 0.00000 | 0.00000 | 0.00000 | 3.29007+00 |
| BETWEEN | 7 | 775 | 7.75000+02 | 1.74765+00 | 1.92338-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 5 | 225 | 2.25000+02 | 1.84444+00 | 1.31944-01 | 0.00000 | 0.00000 | 0.00000 | 1.87875+00 |

BEST SPLIT ON PREDICTOR 6 = 2.050253+01 AFTER CLASS 3

PREDICTOR CUMULATIVE HOURS FOR GPA
7 NON-EMPTY CLASSES 1 2 3 4 7 6 5

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 1 | 88 | 8.80000+01 | 1.31918+00 | 2.19436-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 2 | 912 | 9.12000+02 | 1.80702+00 | 1.55811-01 | 0.00000 | 0.00000 | 0.00000 | 1.91780+01 |
| BETWEEN | 2 | 133 | 1.33000+02 | 1.41353+00 | 2.44361-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 3 | 867 | 8.67000+02 | 1.81776+00 | 1.49199-01 | 0.00000 | 0.00000 | 0.00000 | 1.88419+01 |
| BETWEEN | 3 | 267 | 2.67000+02 | 1.56929+00 | 2.46121-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 733 | 7.33000+02 | 1.83492+00 | 1.36014-01 | 0.00000 | 0.00000 | 0.00000 | 1.38099+01 |
| BETWEEN | 4 | 480 | 4.80000+02 | 1.68125+00 | 2.17602-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 520 | 5.20000+02 | 1.84038+00 | 1.34397-01 | 0.00000 | 0.00000 | 0.00000 | 6.32080+00 |
| BETWEEN | 7 | 619 | 6.19000+02 | 1.71405+00 | 2.04511-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 6 | 381 | 3.81000+02 | 1.84514+00 | 1.31220-01 | 0.00000 | 0.00000 | 0.00000 | 4.05276+00 |
| BETWEEN | 6 | 747 | 7.47000+02 | 1.73628+00 | 1.94433-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 5 | 253 | 2.53000+02 | 1.84585+00 | 1.30905-01 | 0.00000 | 0.00000 | 0.00000 | 2.26898+00 |

BEST SPLIT ON PREDICTOR 7 = 1.917798+01 AFTER CLASS 1

PREDICTOR HOURS EARNED AT UW-PKS
8 NON-EMPTY CLASSES 8 1 2 3 4 7 5 6

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 8 | 46 | 4.60000+01 | 1.15217+00 | 1.31664-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 1 | 954 | 9.54000+02 | 1.79350+00 | 1.64029-01 | 0.00000 | 0.00000 | 0.00000 | 1.80495+01 |
| BETWEEN | 1 | 117 | 1.17000+02 | 1.29915+00 | 2.11465-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 2 | 883 | 8.83000+02 | 1.82559+00 | 1.44151-01 | 0.00000 | 0.00000 | 0.00000 | 2.86325+01 |
| BETWEEN | 2 | 169 | 1.69000+02 | 1.41420+00 | 2.44083-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 3 | 831 | 8.31000+02 | 1.83514+00 | 1.37848-01 | 0.00000 | 0.00000 | 0.00000 | 2.48841+01 |
| BETWEEN | 3 | 296 | 2.96000+02 | 1.57432+00 | 2.45305-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 704 | 7.04000+02 | 1.84375+00 | 1.32023-01 | 0.00000 | 0.00000 | 0.00000 | 1.51266+01 |
| BETWEEN | 4 | 494 | 4.94000+02 | 1.66016+00 | 2.17983-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 506 | 5.06000+02 | 1.84585+00 | 1.30646-01 | 0.00000 | 0.00000 | 0.00000 | 6.86212+00 |
| BETWEEN | 7 | 624 | 6.24000+02 | 1.71314+00 | 2.04899-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 5 | 376 | 3.76000+02 | 1.84940+00 | 1.28957-01 | 0.00000 | 0.00000 | 0.00000 | 4.29269+00 |
| BETWEEN | 5 | 873 | 8.73000+02 | 1.74914+00 | 1.88144-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 6 | 127 | 1.27000+02 | 1.86614+00 | 1.16860-01 | 0.00000 | 0.00000 | 0.00000 | 1.51770+00 |

BEST SPLIT ON PREDICTOR 9 = 2.863251+01 AFTER CLASS 1



PREDICTOR HIGH SCHOOL PERCENTILE
5 NON-EMPTY CLASSES 8 1 2 3 4

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | | 127 | 1.27000+02 | 1.48233+00 | 2.51921-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 1 | 580 | 5.80000+02 | 1.81327+00 | 1.58812-01 | 0.00000 | 0.00000 | 0.00000 | 1.07419+01 |
| BETWEEN | 1 | 440 | 4.40000+02 | 1.65327+00 | 2.27330-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 2 | 560 | 5.60000+02 | 1.95179+00 | 1.26473-01 | 0.00000 | 0.00000 | 0.00000 | 9.80804+00 |
| BETWEEN | 2 | 561 | 5.61000+02 | 1.67382+00 | 2.21167-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 439 | 4.39000+02 | 1.97727+00 | 1.06396-01 | 0.00000 | 0.00000 | 0.00000 | 1.03978+01 |
| BETWEEN | 3 | 744 | 7.44000+02 | 1.71237+00 | 2.05177-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 256 | 2.56000+02 | 1.91406+00 | 7.86603-02 | 0.00000 | 0.00000 | 0.00000 | 7.74838+00 |

BEST SPLIT ON PREDICTOR 10 = 1.674185+01 AFTER CLASS 8

PREDICTOR HIGH SCHOOL YEAR OF GRAD

9 NON-EMPTY CLASSES 8 9 6 7 2 5 4 1 3

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 8 | 5 | 5.00000+00 | 1.60000+00 | 3.00000-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 9 | 995 | 9.95000+02 | 1.76482+00 | 1.80049-01 | 0.00000 | 0.00000 | 0.00000 | 1.35132-01 |
| BETWEEN | 9 | 13 | 1.30000+01 | 1.61538+00 | 2.56410-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 6 | 987 | 9.87000+02 | 1.76596+00 | 1.79448-01 | 0.00000 | 0.00000 | 0.00000 | 2.90854-01 |
| BETWEEN | 8 | 204 | 2.04000+02 | 1.66176+00 | 2.24935-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 796 | 7.96000+02 | 1.79020+00 | 1.65992-01 | 0.00000 | 0.00000 | 0.00000 | 2.67865+00 |
| BETWEEN | 7 | 443 | 4.43000+02 | 1.67269+00 | 2.20678-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 2 | 557 | 5.57000+02 | 1.83662+00 | 1.36930-01 | 0.00000 | 0.00000 | 0.00000 | 6.63162+00 |
| BETWEEN | 2 | 563 | 5.63000+02 | 1.69449+00 | 2.12550-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 5 | 437 | 4.37000+02 | 1.85355+00 | 1.25291-01 | 0.00000 | 0.00000 | 0.00000 | 6.22403+00 |
| BETWEEN | 5 | 624 | 6.24000+02 | 1.76513+00 | 2.08256-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 376 | 3.76000+02 | 1.86170+00 | 1.19469-01 | 0.00000 | 0.00000 | 0.00000 | 5.75186+00 |
| BETWEEN | 4 | 716 | 7.16000+02 | 1.72207+00 | 2.00967-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 1 | 284 | 2.84000+02 | 1.85972+00 | 1.13709-01 | 0.00000 | 0.00000 | 0.00000 | 4.43304+00 |
| BETWEEN | 1 | 883 | 8.83000+02 | 1.74958+00 | 1.86419-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 3 | 117 | 1.17000+02 | 1.88034+00 | 1.06248-01 | 0.00000 | 0.00000 | 0.00000 | 1.79346+00 |

BEST SPLIT ON PREDICTOR 11 = 6.631622+00 AFTER CLASS 7

PREDICTOR MAJOR-PRIME DIVISION

9 NON-EMPTY CLASSES 2 4 8 1 7 9 3 6 5

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 2 | 306 | 3.06000+02 | 1.62745+00 | 2.34523-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 4 | 694 | 6.94000+02 | 1.84421+00 | 1.45099-01 | 0.00000 | 0.00000 | 0.00000 | 8.22125+00 |
| BETWEEN | 4 | 380 | 3.80000+02 | 1.83445+00 | 2.26739-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 8 | 619 | 6.19000+02 | 1.83172+00 | 1.40192-01 | 0.00000 | 0.00000 | 0.00000 | 7.41815+00 |
| BETWEEN | 8 | 439 | 4.39000+02 | 1.80877+00 | 2.21695-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 1 | 570 | 5.70000+02 | 1.85509+00 | 1.37958-01 | 0.00000 | 0.00000 | 0.00000 | 6.69876+00 |
| BETWEEN | 1 | 527 | 5.27000+02 | 1.69451+00 | 2.12574-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 7 | 473 | 4.73000+02 | 1.89414+00 | 1.33703-01 | 0.00000 | 0.00000 | 0.00000 | 5.38211+00 |
| BETWEEN | 7 | 773 | 7.73000+02 | 1.73481+00 | 1.95122-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 9 | 227 | 2.27000+02 | 1.86344+00 | 1.16436-01 | 0.00000 | 0.00000 | 0.00000 | 2.90356+00 |
| BETWEEN | 9 | 330 | 3.30000+02 | 1.74017+00 | 1.91565-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 3 | 170 | 1.70000+02 | 1.87059+00 | 1.13331-01 | 0.00000 | 0.00000 | 0.00000 | 2.32693+00 |
| BETWEEN | 3 | 881 | 8.81000+02 | 1.74915+00 | 1.86139-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 6 | 119 | 1.19000+02 | 1.87739+00 | 1.11095-01 | 0.00000 | 0.00000 | 0.00000 | 1.63287+00 |
| BETWEEN | 6 | 990 | 9.90000+02 | 1.76269+00 | 1.81211-01 | 0.00000 | 0.00000 | 0.00000 | |
| AND | 5 | 10 | 1.00000+01 | 1.90000+00 | 1.00000-01 | 0.00000 | 0.00000 | 0.00000 | 1.86798-01 |

BEST SPLIT ON PREDICTOR 12 = 8.221252+00 AFTER CLASS 2

PREDICTOR MAJOR TYPE-PRIME

2 NON-EMPTY CLASSES 1 2

| PARTITION | | N | WEIGHT | Y-MEAN | Y-VARIANCE | X-MEAN | X-VARIANCE | SLOPE | BSS |
|---|---|---|---|---|---|---|---|---|---|
| BETWEEN | 1 | 586 | 5.86000+02 | 1.67747+00 | 2.15876-01 | 0.00000 | 0.00000 | 0.00000 | |

```
    AND     4   714   7.14000+02   1.83647+00   1.00862-01   0.00000   0.00000   0.00000   1.05970+01
    BEST SPLIT ON PREDICTOR   13 =   1.059705+01 AFTER CLASS  1

PREDICTOR  MARITAL STATUS
   2 NON-EMPTY CLASSES   2  1
 PARTITION       N        WEIGHT        Y-MEAN   Y-VARIANCE        X-MEAN   X-VARIANCE        SLOPE          BSS
 BETWEEN  2   286   2.86000+02   1.67133+00   2.21421-01   0.00000   0.00000   0.00000
     AND  1   714   7.14000+02   1.80112+00   1.59550-01   0.00000   0.00000   0.00000   3.43997+00
    BEST SPLIT ON PREDICTOR   14 =   3.439972+00 AFTER CLASS  2

PREDICTOR  PERMANENT RESIDENCY
   5 NON-EMPTY CLASSES   3  1  5  2  4
 PARTITION       N        WEIGHT        Y-MEAN   Y-VARIANCE        X-MEAN   X-VARIANCE        SLOPE          BSS
 BETWEEN  3   545   5.45000+02   1.74495+00   1.90347-01   0.00000   0.00000   0.00000
     AND  1   455   4.55000+02   1.78681+00   1.66108-01   0.00000   0.00000   0.00000   4.34479-01
 BETWEEN  1   928   9.28000+02   1.75539+00   1.84976-01   0.00000   0.00000   0.00000
     AND  5    72   7.20000+01   1.87500+00   1.10915-01   0.00000   0.00000   0.00000   9.55933-01
 BETWEEN  5   943   9.43000+02   1.75610+00   1.84610-01   0.00000   0.00000   0.00000
     AND  2    57   5.70000+01   1.89474+00   9.58647-02   0.00000   0.00000   0.00000   1.03311+00
 BETWEEN  2   978   9.78000+02   1.76074+00   1.82203-01   0.00000   0.00000   0.00000
     AND  4    22   2.20000+01   1.90909+00   8.65301-02   0.00000   0.00000   0.00000   4.73511-01
    BEST SPLIT ON PREDICTOR   15 =   1.033112+00 AFTER CLASS  5

PREDICTOR  PAST SEMESTER SCH LOAD
   6 NON-EMPTY CLASSES   1  2  4  3  5  6
 PARTITION       N        WEIGHT        Y-MEAN   Y-VARIANCE        X-MEAN   X-VARIANCE        SLOPE          BSS
 BETWEEN  1    40   4.00000+01   1.30000+00   2.15385-01   0.00000   0.00000   0.00000
     AND  2   960   9.60000+02   1.78333+00   1.69399-01   0.00000   0.00000   0.00000   6.97064+00
 BETWEEN  2   240   2.40000+02   1.45000+00   2.48536-01   0.00000   0.00000   0.00000
     AND  4   760   7.60000+02   1.86316+00   1.16272-01   0.00000   0.00000   0.00000   3.11355+01
 BETWEEN  4   354   3.54000+02   1.55367+00   2.47819-01   0.00000   0.00000   0.00000
     AND  3   646   6.46000+02   1.87926+00   1.06329-01   0.00000   0.00000   0.00000   2.42417+01
 BETWEEN  3   502   5.02000+02   1.61952+00   2.36185-01   0.00000   0.00000   0.00000
     AND  5   498   4.98000+02   1.90964+00   8.23617-02   0.00000   0.00000   0.00000   2.10416+01
 BETWEEN  5   995   9.95000+02   1.76281+00   1.81111-01   0.00000   0.00000   0.00000
     AND  6     5   5.00000+00   2.00000+00   0.00000      0.00000   0.00000   0.00000   2.79877-01
    BEST SPLIT ON PREDICTOR   16 =   3.113553+01 AFTER CLASS  2

PREDICTOR  RACE
   3 NON-EMPTY CLASSES   2  3  1
 PARTITION       N        WEIGHT        Y-MEAN   Y-VARIANCE        X-MEAN   X-VARIANCE        SLOPE          BSS
 BETWEEN  2    32   3.20000+01   1.71875+00   2.06669-01   0.00000   0.00000   0.00000
     AND  3   963   9.63000+02   1.76550+00   1.79698-01   0.00000   0.00000   0.00000   6.76880-02
 BETWEEN  3    51   5.10000+01   1.72549+00   2.03137-01   0.00000   0.00000   0.00000
     AND  1   949   9.49000+02   1.76607+00   1.79396-01   0.00000   0.00000   0.00000   7.96814-02
    BEST SPLIT ON PREDICTOR   17 =   7.968140-02 AFTER CLASS  3

PREDICTOR  RESIDENT FEE STATUS
   3 NON-EMPTY CLASSES   2  1  3
 PARTITION       N        WEIGHT        Y-MEAN   Y-VARIANCE        X-MEAN   X-VARIANCE        SLOPE          BSS
 BETWEEN  2    22   2.20000+01   1.68182+00   2.27273-01   0.00000   0.00000   0.00000
     AND  1   978   9.78000+02   1.76585+00   1.79508-01   0.00000   0.00000   0.00000   1.51917-01
 BETWEEN  1   994   9.94000+02   1.76258+00   1.81236-01   0.00000   0.00000   0.00000
     AND  3     6   6.00000+00   2.00000+00   0.00000      0.00000   0.00000   0.00000   5.36182-01
    NO SPLIT ON V   18 - RESULTANT GROUPS TOO SMALL

PREDICTOR  SEX
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   2 NON-EMPTY CLASSES   2  1
PARTITION          N          WEIGHT          Y-MEAN      Y-VARIANCE          X-MEAN      X-VARIANCE          SLOPE              BSS
BETWEEN  2   427  4.27000+02   1.78330+00   1.91697-01   0.00000   0.00000   0.00000
     AND  1   573  5.73000+02   1.78911+00   1.71841-01   0.00000   0.00000   0.00000   3.48022-01
    BEST SPLIT ON PREDICTOR   19 =   3.480225-01 AFTER CLASS  2

PREDICTOR  TRANSFER HOURS ACCEPTED
   8 NON-EMPTY CLASSES   7  2  8  3  4  5  6  1
PARTITION          N          WEIGHT          Y-MEAN      Y-VARIANCE          X-MEAN      X-VARIANCE          SLOPE              BSS
BETWEEN  7    17  1.70000+01   1.64706+00   2.42647-01   0.00000   0.00000   0.00000
     AND  2   983  9.83000+02   1.78601+00   1.79415-01   0.00000   0.00000   0.00000   2.36481-01
BETWEEN  2    34  3.40000+01   1.67647+00   2.25490-01   0.00000   0.00000   0.00000
     AND  6   966  9.66000+02   1.78706+00   1.78853-01   0.00000   0.00000   0.00000   2.69623-01
BETWEEN  6   754  7.54000+02   1.74137+00   1.89641-01   0.00000   0.00000   0.00000
     AND  7   216  2.16000+02   1.89815+00   1.42614-01   0.00000   0.00000   0.00000   1.15341+00
BETWEEN  7   919  9.19000+02   1.74726+00   1.89097-01   0.00000   0.00000   0.00000
     AND  4   181  1.81000+02   1.88398+00   1.35298-01   0.00000   0.00000   0.00000   1.26904+00
BETWEEN  4   865  8.65000+02   1.75145+00   1.86992-01   0.00000   0.00000   0.00000
     AND  5   135  1.35000+02   1.84444+00   1.32338-01   0.00000   0.00000   0.00000   1.00998+00
BETWEEN  5   946  9.46000+02   1.75793+00   1.83667-01   0.00000   0.00000   0.00000
     AND  8    54  5.40000+01   1.87037+00   1.14955-01   0.00000   0.00000   0.00000   6.45844-01
BETWEEN  8   993  9.93000+02   1.76234+00   1.81362-01   0.00000   0.00000   0.00000
     AND  1     7  7.00000+00   2.00000+00   0.00000   0.00000   0.00000   0.00000   3.92609-01
    BEST SPLIT ON PREDICTOR   20 =   1.269043+00 AFTER CLASS  3

PREDICTOR  TRANSFER GPA - OVERALLD
   7 NON-EMPTY CLASSES   9  4  5  7  6  8  3
PARTITION          N          WEIGHT          Y-MEAN      Y-VARIANCE          X-MEAN      X-VARIANCE          SLOPE              BSS
BETWEEN  9   817  8.17000+02   1.75796+00   1.85723-01   0.00000   0.00000   0.00000
     AND  4   183  1.83000+02   1.80874+00   1.55528-01   0.00000   0.00000   0.00000   4.48364-01
BETWEEN  4   839  8.39000+02   1.75447+00   1.85466-01   0.00000   0.00000   0.00000
     AND  5   161  1.61000+02   1.81366+00   1.52562-01   0.00000   0.00000   0.00000   4.73328-01
BETWEEN  5   893  8.93000+02   1.75586+00   1.84733-01   0.00000   0.00000   0.00000
     AND  7   107  1.07000+02   1.80374+00   1.41245-01   0.00000   0.00000   0.00000   5.50354-01
BETWEEN  7   921  9.21000+02   1.75679+00   1.84261-01   0.00000   0.00000   0.00000
     AND  6    79  7.90000+01   1.84810+00   1.30477-01   0.00000   0.00000   0.00000   6.06659-01
BETWEEN  6   974  9.74000+02   1.75873+00   1.83249-01   0.00000   0.00000   0.00000
     AND  8    26  2.60000+01   1.96154+00   3.84616-02   0.00000   0.00000   0.00000   1.04163+00
BETWEEN  8   995  9.95000+02   1.76281+00   1.81111-01   0.00000   0.00000   0.00000
     AND  3     5  5.00000+00   2.00000+00   0.00000   0.00000   0.00000   0.00000   2.79877-01
    BEST SPLIT ON PREDICTOR   21 =   1.041626+00 AFTER CLASS  6

PREDICTOR  VETERAN STATUS
   3 NON-EMPTY CLASSES   1  2  3
PARTITION          N          WEIGHT          Y-MEAN      Y-VARIANCE          X-MEAN      X-VARIANCE          SLOPE              BSS
BETWEEN  1   104  1.04000+02   1.74038+00   1.94081-01   0.00000   0.00000   0.00000
     AND  3   896  8.96000+02   1.78674+00   1.77049-01   0.00000   0.00000   0.00000   6.47278-02
BETWEEN  2   994  9.94000+02   1.78258+00   1.80707-01   0.00000   0.00000   0.00000
     AND  3     6  6.00000+00   1.83333+00   1.66667-01   0.00000   0.00000   0.00000   2.89917-02
    BEST SPLIT ON PREDICTOR   22 =   6.472778-02 AFTER CLASS  1

PREDICTOR  FACTOR SCORE 1
   9 NON-EMPTY CLASSES   9  8  7  5  3  6  4  2  1
PARTITION          N          WEIGHT          Y-MEAN      Y-VARIANCE          X-MEAN      X-VARIANCE          SLOPE              BSS
BETWEEN  9    16  1.60000+01   1.37500+00   2.50000-01   0.00000   0.00000   0.00000
     AND  6   984  9.84000+02   1.77033+00   1.77104-01   0.00000   0.00000   0.00000   2.46051+00
BETWEEN  6   202  2.02000+02   1.56931+00   2.46416-01   0.00000   0.00000   0.00000
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    AND   7   798  7.98000+02   1.81728+00   1.52044-01   0.00000   0.00000   0.00000   9.59506+00
BETWEEN   7   304  3.04000+02   1.59539+00   2.41695-01   0.00000   0.00000   0.00000
    AND   5   698  6.98000+02   1.83764+00   1.36192-01   0.00000   0.00000   0.00000   1.24167+01
BETWEEN   5   381  3.81000+02   1.62736+00   2.34411-01   0.00000   0.00000   0.00000
    AND   3   619  6.19000+02   1.84914+00   1.29005-01   0.00000   0.00000   0.00000   1.15025+01
BETWEEN   3   442  4.42000+02   1.64486+00   2.29553-01   0.00000   0.00000   0.00000
    AND   6   559  5.58000+02   1.85942+00   1.21751-01   0.00000   0.00000   0.00000   1.12555+01
BETWEEN   6   500  5.00000+02   1.68700+00   2.24850-01   0.00000   0.00000   0.00000
    AND   4   500  5.00000+02   1.86900+00   1.14806-01   0.00000   0.00000   0.00000   1.08160+01
BETWEEN   4   585  5.85000+02   1.67692+00   2.19073-01   0.00000   0.00000   0.00000
    AND   2   415  4.15000+02   1.88675+00   1.00669-01   0.00000   0.00000   0.00000   1.06884+01
BETWEEN   2   817  8.17000+02   1.72448+00   1.99856-01   0.00000   0.00000   0.00000
    AND   1   183  1.83000+02   1.93583+00   6.03761-02   0.00000   0.00000   0.00000   6.79111+00
    BEST SPLIT ON PREDICTOR   23 =   1.241666+01 AFTER CLASS  7

PREDICTOR  FACTOR SCORE 2
   9 NON-EMPTY CLASSES   1  2  4  3  8  6  7  5  9
 PARTITION        N        WEIGHT        Y-MEAN    Y-VARIANCE        X-MEAN   X-VARIANCE        SLOPE          BSS
BETWEEN   1   181  1.81000+02   1.50829+00   2.51320-01   0.00000   0.00000   0.00000
    AND   2   819  8.19000+02   1.82051+00   1.47452-01   0.00000   0.00000   0.00000   1.44510+01
BETWEEN   2   420  4.20000+02   1.62619+00   2.34635-01   0.00000   0.00000   0.00000
    AND   4   580  5.80000+02   1.86379+00   1.17858-01   0.00000   0.00000   0.00000   1.37524+01
BETWEEN   4   512  5.12000+02   1.66016+00   2.24789-01   0.00000   0.00000   0.00000
    AND   3   488  4.88000+02   1.87295+00   1.11135-01   0.00000   0.00000   0.00000   1.13138+01
BETWEEN   3   600  6.00000+02   1.68733+00   2.16750-01   0.00000   0.00000   0.00000
    AND   8   400  4.00000+02   1.85500+00   1.02030-01   0.00000   0.00000   0.00000   9.76062+00
BETWEEN   8   781  7.81000+02   1.72343+00   2.00335-01   0.00000   0.00000   0.00000
    AND   6   219  2.19000+02   1.93686+00   8.33648-02   0.00000   0.00000   0.00000   5.86926+00
BETWEEN   6   837  8.37000+02   1.73357+00   1.95678-01   0.00000   0.00000   0.00000
    AND   7   163  1.63000+02   1.92025+00   7.38469-02   0.00000   0.00000   0.00000   4.75418+00
BETWEEN   7   925  9.25000+02   1.74919+00   1.88108-01   0.00000   0.00000   0.00000
    AND   5    75  7.50000+01   1.94667+00   5.11712-02   0.00000   0.00000   0.00000   2.70541+00
BETWEEN   5   981  9.81000+02   1.76045+00   1.82352-01   0.00000   0.00000   0.00000
    AND   9    19  1.90000+01   1.94737+00   5.26316-02   0.00000   0.00000   0.00000   6.51184-01
    BEST SPLIT ON PREDICTOR   24 =   1.445102+01 AFTER CLASS  1

PAST SEMESTER SCH LOAD   YIELDS MAXIMUM BSS =   3.113553+01

0-STEP LOOKAHEAD TO SPLIT GROUP   1, TOTAL BSS =   3.113553+01
       1, SPLIT GROUP   1 ON PREDICTOR   16, BSS =   3.113553+01
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          ***** PARTITION OF GROUP   1 *****

    MAXIMUM ELIGIBLE BSS AT EACH STEP          MAXIMUM TOTAL BSS (LOOKAHEAD)
  1.SPLIT   1 ON V   16 BSS=  3.11355+01     SPLIT   1 ON V  16 BSS =  3.11355+01
  PE(1)=  1.442+00, TOTAL=  3.11355+01                       TOTAL=  3.11355+01

SPLIT GROUP   1 ON PAST SEMESTER SCH LOAD    V  16
   GROUP   2 WITH   240 OBSERVATIONS FROM  2 CLASSES =  1  2
             W=  2.40000+02 Y=  3.48000+02 YSQ=  5.64000+02 X=
   GROUP   3 WITH   760 OBSERVATIONS FROM  4 CLASSES =  4  3  5  6
             W=  7.60000+02 Y=  1.41600+03 YSQ=  2.72800+03 X=

          2 CANDIDATES -     GROUP       SS
                               2     5.940000+01
                               3     8.976842+01

           ATTEMPT SPLIT ON GROUP   3 WITH SS =  8.976842+01
```

# APPENDIX C

## CORRELATION MATRICES

## FOR

## DISCRIMINANT ANALYSIS AND MULTIPLE REGRESSION

RUN DISCRIMINANT & REGRESSION WITHOUT & WITH FACSCR'S 05/05/77

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

CORRELATION COEFFICIENTS

A VALUE OF 99.00000 IS PRINTED
IF A COEFFICIENT CANNOT BE COMPUTED.

| | RETURN | ACDSTA | AGE | APLMO | CLASS | CUMGPA | CUMHRS | HREARN | HSPCT | HSYR | MAJR1 | MAJTP1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RETURN | 1.00000 | -0.21142 | -0.14504 | 0.01540 | -0.21880 | 0.27305 | 0.16000 | 0.17974 | 0.27988 | 0.01888 | -0.13600 | 0.24243 |
| ACDSTA | -0.21142 | 1.00000 | -0.13040 | 0.00436 | -0.13512 | -0.61641 | -0.07846 | -0.14897 | -0.18329 | 0.09583 | -0.02919 | -0.08170 |
| AGE | -0.14504 | -0.13040 | 1.00000 | 0.05334 | 0.39018 | 0.05172 | 0.01660 | 0.02170 | -0.38958 | -0.52428 | -0.05593 | 0.02145 |
| APLMO | 0.01540 | 0.00436 | 0.05334 | 1.00000 | 0.10591 | 0.04115 | 0.20085 | 0.19814 | 0.01510 | -0.02466 | -0.04694 | 0.19088 |
| CLASS | -0.21880 | -0.13512 | 0.39018 | 0.10591 | 1.00000 | 0.06587 | 0.32070 | 0.32814 | -0.43119 | -0.31619 | -0.06839 | 0.13605 |
| CUMGPA | 0.27305 | -0.61641 | 0.05172 | 0.04115 | 0.06587 | 1.00000 | 0.21333 | 0.26312 | 0.27846 | -0.06009 | -0.07044 | 0.19605 |
| CUMHRS | 0.16000 | -0.07846 | 0.01660 | 0.20085 | 0.32070 | 0.21333 | 1.00000 | 0.99415 | 0.00840 | -0.32391 | -0.24843 | 0.51639 |
| HREARN | 0.17974 | -0.14897 | 0.02170 | 0.19814 | 0.32814 | 0.26312 | 0.99415 | 1.00000 | 0.03153 | -0.31536 | -0.23960 | 0.52120 |
| HSPCT | 0.27988 | -0.18329 | -0.38958 | 0.01510 | -0.43119 | 0.27846 | 0.00840 | 0.03153 | 1.00000 | 0.33773 | -0.06257 | 0.14544 |
| HSYR | 0.01888 | 0.09583 | -0.52428 | -0.02466 | -0.31619 | -0.06009 | -0.32391 | -0.31536 | 0.33773 | 1.00000 | 0.08388 | -0.16205 |
| MAJR1 | -0.13600 | -0.02919 | -0.05593 | -0.04694 | -0.06839 | -0.07044 | -0.24843 | -0.23960 | -0.06257 | 0.08388 | 1.00000 | -0.31315 |
| MAJTP1 | 0.24243 | -0.08170 | 0.02145 | 0.19088 | 0.13605 | 0.19605 | 0.51639 | 0.52120 | 0.14544 | -0.16205 | -0.31315 | 1.00000 |
| MARITL | -0.13813 | -0.12545 | 0.50883 | 0.04656 | 0.28071 | 0.05972 | -0.01587 | -0.00788 | -0.27015 | -0.28332 | -0.06801 | 0.01616 |
| PRES | -0.02018 | 0.04200 | 0.02960 | -0.01376 | 0.04766 | -0.01245 | -0.06164 | -0.06756 | 0.01939 | 0.01950 | 0.00603 | 0.01398 |
| PSEMHR | 0.41614 | -0.00996 | -0.43385 | -0.00433 | -0.30823 | 0.09231 | 0.16193 | 0.16688 | 0.46338 | 0.25921 | -0.07911 | 0.23628 |
| RACE | 0.03149 | -0.25866 | 0.01088 | 0.00922 | 0.01652 | 0.15932 | -0.00382 | 0.01945 | 0.07657 | -0.02235 | 0.06041 | -0.02230 |
| RESFEE | 0.01139 | 0.07998 | 0.02571 | -0.03499 | 0.01526 | -0.04754 | -0.06437 | -0.07691 | -0.01348 | -0.00696 | -0.00283 | -0.00073 |
| SEX | -0.04394 | -0.09889 | 0.08187 | -0.05133 | -0.08957 | 0.10014 | -0.12283 | -0.10846 | 0.11522 | -0.01891 | -0.00786 | -0.08939 |
| TRANHR | 0.03287 | -0.02065 | 0.18207 | 0.32089 | 0.21422 | 0.09077 | -0.05654 | -0.05280 | -0.01874 | -0.03826 | -0.15077 | 0.27067 |
| TRNGPA | 0.07686 | -0.04277 | 0.08925 | 0.04071 | 0.07066 | 0.11588 | -0.00755 | -0.00303 | 0.08718 | 0.00369 | -0.09431 | 0.19892 |
| VET | 0.01819 | -0.04796 | -0.08235 | -0.00588 | -0.03947 | 0.03834 | -0.02825 | -0.02338 | 0.02901 | -0.04327 | -0.00998 | -0.04075 |
| FACSCR1 | -0.30567 | -0.05059 | 0.79021 | 0.06523 | 0.67564 | -0.07909 | 0.12063 | 0.11532 | -0.70160 | -0.63273 | -0.04449 | -0.00463 |
| FACSCR2 | 0.25739 | -0.19503 | 0.01218 | 0.30599 | 0.31218 | 0.32657 | 0.92369 | 0.93138 | 0.15776 | -0.31484 | -0.38531 | 0.71058 |

RUN DISCRIMINANT & REGRESSION WITHOUT & WITH FACSCR'S 05/05/77

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

| | MARITL | PRES | PSEMHR | RACE | RESFEE | SEX | TRANHR | TRNGPA | VET | FACSCR1 | FACSCR2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RETURN | -0.13813 | -0.02018 | 0.41614 | 0.03149 | 0.01139 | -0.04394 | 0.03287 | 0.07686 | 0.01819 | -0.30567 | 0.25739 |
| ACDSTA | -0.12545 | 0.04200 | -0.00996 | -0.25866 | 0.07998 | -0.09889 | -0.02065 | -0.04277 | -0.04796 | -0.05059 | -0.19503 |
| AGE | 0.50883 | 0.02960 | -0.43385 | 0.01088 | 0.02571 | 0.08187 | 0.18207 | 0.08925 | -0.08235 | 0.79021 | 0.01218 |
| APLMO | 0.04656 | -0.01376 | -0.00433 | 0.00922 | -0.03499 | -0.05133 | 0.02089 | 0.04071 | -0.00588 | 0.06523 | 0.30599 |
| CLASS | 0.28071 | 0.04766 | -0.30823 | 0.01652 | 0.01526 | -0.08957 | 0.21422 | 0.07066 | -0.03947 | 0.67564 | 0.31218 |
| CUMGPA | 0.05972 | -0.01245 | 0.09231 | 0.15932 | -0.04754 | 0.10014 | 0.09077 | 0.11588 | 0.03834 | -0.07909 | 0.32657 |
| CUMHRS | -0.01587 | -0.06164 | 0.16193 | -0.00382 | -0.06437 | -0.12283 | -0.05654 | -0.00755 | -0.02825 | 0.12063 | 0.92369 |
| HREARN | -0.00788 | -0.06756 | 0.16688 | 0.01945 | -0.07691 | -0.10846 | -0.05280 | -0.00303 | -0.02338 | 0.11532 | 0.93138 |
| HSPCT | -0.27015 | 0.01939 | 0.46338 | 0.07657 | -0.01348 | 0.11522 | -0.01874 | 0.08718 | 0.02901 | -0.70160 | 0.15776 |
| HSYR | -0.28332 | 0.01950 | 0.25921 | -0.02235 | -0.00696 | -0.01891 | -0.03826 | 0.00369 | -0.04327 | -0.63273 | -0.31484 |
| MAJR1 | -0.06801 | 0.00605 | -0.07911 | 0.06041 | -0.00283 | -0.00786 | -0.15077 | -0.09431 | -0.00998 | -0.04449 | -0.38531 |
| MAJTP1 | 0.01616 | 0.01398 | 0.23628 | -0.02230 | -0.00073 | -0.08939 | 0.27067 | 0.19892 | -0.04075 | -0.00463 | 0.71058 |
| MARITL | 1.00000 | 0.05467 | -0.37733 | 0.05796 | 0.01333 | 0.01288 | 0.19287 | 0.12495 | -0.06110 | 0.63677 | -0.03359 |
| PRES | 0.05467 | 1.00000 | 0.02008 | -0.06829 | 0.22530 | -0.04690 | 0.13528 | 0.14639 | -0.04060 | 0.03903 | -0.07299 |
| PSEMHR | -0.37733 | 0.02008 | 1.00000 | 0.01315 | -0.00034 | -0.04205 | -0.05829 | 0.01915 | -0.02323 | -0.67897 | 0.29653 |
| RACE | 0.05796 | -0.06829 | 0.01315 | 1.00000 | -0.17920 | -0.02288 | -0.02551 | -0.00212 | -0.07517 | -0.00721 | 0.04901 |
| RESFEE | 0.01333 | 0.22530 | -0.00034 | -0.17920 | 1.00000 | -0.06223 | 0.12495 | 0.14940 | 0.04821 | 0.03675 | -0.09712 |
| SEX | 0.01288 | -0.04690 | -0.04205 | -0.02288 | -0.06223 | 1.00000 | -0.02574 | 0.00000 | 0.10489 | -0.03149 | -0.12104 |
| TRANHR | 0.19287 | 0.13528 | -0.05829 | -0.02551 | 0.12495 | -0.02574 | 1.00000 | 0.55012 | -0.00946 | 0.19517 | 0.02741 |
| TRNGPA | 0.12495 | 0.14639 | 0.01915 | -0.00212 | 0.14940 | 0.00000 | 0.55012 | 1.00000 | -0.06391 | 0.02359 | 0.08546 |
| VET | -0.06110 | -0.04060 | -0.02323 | -0.07517 | 0.04821 | 0.10489 | -0.00946 | -0.06391 | 1.00000 | -0.05593 | -0.03525 |
| FACSCR1 | 0.63677 | 0.03903 | -0.67897 | -0.00721 | 0.03675 | -0.03149 | 0.19517 | 0.02359 | -0.05593 | 1.00000 | 0.04112 |
| FACSCR2 | -0.03359 | -0.07299 | 0.29653 | 0.04901 | -0.09712 | -0.12104 | 0.02741 | 0.08546 | -0.03525 | 0.04112 | 1.00000 |

RUN DISCRIMINANT & REGRESSION WITH FACSCR'S & DUMMY VARIABLES 05/05/77

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

CORRELATION COEFFICIENTS

A VALUE OF 99.00000 IS PRINTED
IF A COEFFICIENT CANNOT BE COMPUTED.

| | RETURN | ACDSTA | AGE | APLMO | CLASS | CUMGPA | CUMHRS | HREARN | HSPCT | HSYR | MAJR1 | MAJTP1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RETURN | 1.00000 | -0.21142 | -0.14504 | 0.26832 | -0.21880 | 0.27305 | 0.16000 | 0.17974 | 0.27988 | -0.16504 | -0.13600 | 0.24243 |
| ACDSTA | -0.21142 | 1.00000 | -0.13040 | -0.02557 | -0.13512 | -0.61641 | -0.07846 | -0.14897 | -0.18329 | -0.02793 | -0.02919 | -0.08170 |
| AGE | -0.14504 | -0.13040 | 1.00000 | -0.13400 | 0.39018 | 0.05172 | 0.01660 | 0.02170 | -0.38958 | 0.29423 | -0.05593 | 0.02145 |
| APLMO | 0.26832 | -0.02557 | -0.13400 | 1.00000 | -0.10634 | 0.12186 | 0.26516 | 0.26884 | 0.16162 | -0.08356 | -0.12089 | 0.25406 |
| CLASS | -0.21880 | -0.13512 | 0.39018 | -0.10634 | 1.00000 | 0.06537 | 0.32070 | 0.32814 | -0.43119 | 0.34640 | -0.06839 | 0.13605 |
| CUMGPA | 0.27305 | -0.61641 | 0.05172 | 0.12186 | 0.06587 | 1.00000 | 0.21333 | 0.26312 | 0.27846 | 0.05325 | -0.07044 | 0.19605 |
| CUMHRS | 0.16000 | -0.07846 | 0.01660 | 0.26516 | 0.32070 | 0.21333 | 1.00000 | 0.99415 | 0.00840 | 0.16293 | -0.24843 | 0.51639 |
| HREARN | 0.17974 | -0.14897 | 0.02170 | 0.26884 | 0.32814 | 0.26312 | 0.99415 | 1.00000 | 0.03153 | 0.15830 | -0.23960 | 0.52120 |
| HSPCT | 0.27988 | -0.18329 | -0.38958 | 0.16162 | -0.43119 | 0.27846 | 0.00840 | 0.03153 | 1.00000 | -0.33709 | -0.06257 | 0.14544 |
| HSYR | -0.16504 | -0.02793 | 0.29423 | -0.08356 | 0.34640 | 0.05325 | 0.16293 | 0.15830 | -0.33709 | 1.00000 | -0.06869 | 0.09348 |
| MAJR1 | -0.13600 | -0.02919 | -0.05593 | -0.12089 | -0.06839 | -0.07044 | -0.24843 | -0.23960 | -0.06257 | -0.06869 | 1.00000 | -0.31315 |
| MAJTP1 | 0.24243 | -0.08170 | 0.02145 | 0.25406 | 0.13605 | 0.19605 | 0.51639 | 0.52120 | 0.14544 | 0.09348 | -0.31315 | 1.00000 |
| MARITL | -0.13813 | -0.12545 | 0.50883 | -0.09252 | 0.28071 | 0.05972 | -0.01587 | -0.00788 | -0.27015 | 0.34475 | -0.06801 | 0.01616 |
| PRES | -0.02018 | 0.04200 | 0.02960 | -0.06552 | 0.04766 | -0.01245 | -0.06164 | -0.06756 | 0.01939 | -0.03650 | 0.00603 | 0.01398 |
| PSEMHR | 0.41614 | -0.00996 | -0.43385 | 0.21379 | -0.30823 | 0.09231 | 0.16193 | 0.16688 | 0.46338 | -0.32071 | -0.07911 | 0.23628 |
| RACE | 0.03149 | -0.25866 | 0.01088 | 0.03578 | 0.01652 | 0.15932 | -0.00382 | 0.01945 | 0.07657 | -0.03649 | 0.06041 | -0.02230 |
| RESFEE | 0.01139 | 0.07998 | 0.02571 | 0.01160 | 0.01526 | -0.04754 | -0.06437 | -0.07691 | -0.01348 | -0.03178 | -0.00283 | -0.00073 |
| SEX | -0.04394 | -0.09889 | 0.08187 | -0.08025 | -0.08957 | 0.10014 | -0.12283 | -0.10846 | 0.11522 | -0.09016 | -0.00786 | -0.08939 |
| TRANHR | 0.03287 | -0.02065 | 0.18207 | -0.00595 | 0.21422 | 0.09077 | -0.05654 | -0.05280 | -0.01874 | 0.20343 | -0.15077 | 0.27067 |
| TRNGPA | 0.07686 | -0.04277 | 0.08925 | -0.00528 | 0.07066 | 0.11588 | -0.00755 | -0.00303 | 0.08718 | 0.14631 | -0.09431 | 0.19892 |
| VET | 0.01819 | -0.04796 | -0.08235 | 0.08674 | -0.03947 | 0.03834 | -0.02825 | -0.02338 | 0.02901 | -0.00960 | -0.00998 | -0.04075 |
| FACSCR1 | -0.30567 | -0.05059 | 0.79021 | -0.13622 | 0.67564 | -0.07909 | 0.12063 | 0.11532 | -0.70160 | 0.43256 | -0.04449 | -0.00463 |
| FACSCR2 | 0.25739 | -0.19503 | 0.01218 | 0.33215 | 0.31218 | 0.32657 | 0.92369 | 0.93138 | 0.15776 | 0.11261 | -0.38531 | 0.71058 |
| VARAA | 0.34356 | 0.02808 | -0.27358 | 0.58674 | -0.23813 | 0.05364 | 0.16155 | 0.16635 | 0.27864 | -0.19758 | -0.08489 | 0.22739 |
| VARAB | 0.38517 | -0.16044 | -0.22637 | 0.54681 | -0.15242 | 0.21278 | 0.21481 | 0.23385 | 0.30552 | -0.15041 | -0.07644 | 0.25590 |
| VARAC | 0.48360 | -0.19749 | -0.27877 | 0.26056 | -0.37020 | 0.25772 | 0.23972 | 0.26106 | 0.45786 | -0.19785 | -0.11165 | 0.37157 |
| VARAD | 0.23491 | -0.07895 | 0.12866 | 0.16089 | 0.04851 | 0.16186 | 0.23794 | 0.24357 | -0.04910 | 0.55042 | -0.09260 | 0.26084 |

RUN DISCRIMINANT & REGRESSION WITH FACSCR'S & DUMMY VARIABLES

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

| | MARITL | PRES | PSEMHR | RACE | RESFEE | SEX | TRANHR | TRNGPA | VET | FACSCR1 | FACSCR2 | VARAA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RETURN | -0.13813 | -0.02018 | 0.41614 | 0.03149 | 0.01139 | -0.04394 | 0.03287 | 0.07686 | 0.01819 | -0.30567 | 0.25739 | 0.34356 |
| ACDSTA | -0.12545 | 0.04200 | -0.00996 | -0.25866 | 0.07998 | -0.09889 | -0.02065 | -0.04277 | -0.04796 | -0.05059 | -0.19503 | 0.02808 |
| AGE | 0.50883 | 0.02960 | -0.43385 | 0.01088 | 0.02571 | 0.08187 | 0.18207 | 0.08925 | -0.08235 | 0.79021 | 0.01218 | -0.27358 |
| APLMO | -0.09252 | -0.06552 | 0.21379 | 0.03578 | 0.01160 | -0.08025 | -0.00595 | -0.00528 | 0.08674 | -0.13622 | 0.33215 | 0.58674 |
| CLASS | 0.28071 | 0.04766 | -0.30823 | 0.01652 | 0.01526 | -0.08957 | 0.21422 | 0.07066 | -0.03947 | 0.67564 | 0.31218 | -0.23813 |
| CUMGPA | 0.05972 | -0.01245 | 0.09231 | 0.15932 | -0.04754 | 0.10014 | 0.09077 | 0.11588 | 0.03834 | -0.07909 | 0.32657 | 0.05364 |
| CUMHRS | -0.01587 | -0.06164 | 0.16193 | -0.00382 | -0.06437 | -0.12283 | -0.05654 | -0.00755 | -0.02825 | 0.12063 | 0.92369 | 0.16155 |
| HREARN | -0.00788 | -0.06756 | 0.16688 | 0.01945 | -0.07691 | -0.10846 | -0.05280 | -0.00303 | -0.02338 | 0.11532 | 0.93138 | 0.16635 |
| HSPCT | -0.27015 | 0.01939 | 0.46338 | 0.07657 | -0.01348 | 0.11522 | -0.01874 | 0.08718 | 0.02901 | -0.70160 | 0.15776 | 0.27864 |
| HSYR | 0.34475 | -0.03650 | -0.32071 | -0.03649 | -0.03178 | -0.09016 | 0.20343 | 0.14631 | -0.00960 | 0.43256 | 0.11261 | -0.19758 |
| MAJR1 | -0.06801 | 0.00603 | -0.07911 | 0.06041 | -0.00283 | -0.00786 | -0.15077 | -0.09431 | -0.00998 | -0.04449 | -0.38531 | -0.08489 |
| MAJTP1 | 0.01616 | 0.01398 | 0.23628 | -0.02230 | -0.00073 | -0.08939 | 0.27067 | 0.19892 | -0.04075 | -0.00463 | 0.71058 | 0.22739 |
| MARITL | 1.00000 | 0.05467 | -0.37733 | 0.05796 | 0.01333 | 0.01288 | 0.19287 | 0.12495 | -0.06110 | 0.63677 | -0.03359 | -0.21568 |
| PRES | 0.05467 | 1.00000 | 0.02008 | -0.06829 | 0.22530 | -0.04690 | 0.13528 | 0.14639 | -0.04060 | 0.03905 | -0.07299 | -0.03232 |
| PSEMHR | -0.37733 | 0.02008 | 1.00000 | 0.01315 | -0.00034 | -0.04205 | -0.05829 | 0.01915 | -0.02323 | -0.67897 | 0.29653 | 0.56040 |
| RACE | 0.05796 | -0.06829 | 0.01315 | 1.00000 | -0.17920 | -0.02288 | -0.02551 | -0.00212 | -0.07517 | -0.00721 | 0.04901 | -0.00175 |
| RESFEE | 0.01333 | 0.22530 | -0.00034 | -0.17920 | 1.00000 | -0.06223 | 0.12495 | 0.14940 | 0.04821 | 0.03675 | -0.09712 | -0.00617 |
| SEX | 0.01288 | -0.04690 | -0.04205 | -0.02288 | -0.06223 | 1.00000 | -0.02574 | 0.00000 | 0.10489 | -0.03149 | -0.12104 | -0.09185 |
| TRANHR | 0.19287 | 0.13528 | -0.05829 | -0.02551 | 0.12495 | -0.02574 | 1.00000 | 0.55012 | -0.00946 | 0.19517 | 0.02741 | -0.00231 |
| TRNGPA | 0.12495 | 0.14639 | 0.01915 | -0.00212 | 0.14940 | 0.00000 | 0.55012 | 1.00000 | -0.06391 | 0.02359 | 0.08546 | 0.03100 |
| VET | -0.06110 | -0.04060 | -0.02323 | -0.07517 | 0.04821 | 0.10489 | -0.00946 | -0.06391 | 1.00000 | -0.05593 | -0.03525 | -0.03584 |
| FACSCR1 | 0.63677 | 0.03903 | -0.67897 | -0.00721 | 0.03675 | -0.03149 | 0.19517 | 0.02359 | -0.05593 | 1.00000 | 0.04112 | -0.39952 |
| FACSCR2 | -0.03359 | -0.07299 | 0.29653 | 0.04901 | -0.09712 | -0.12104 | 0.02741 | 0.08546 | -0.03525 | 0.04112 | 1.00000 | 0.24334 |
| VARAA | -0.21568 | -0.03232 | 0.56040 | -0.00175 | -0.00617 | -0.09185 | -0.00231 | 0.03100 | -0.03584 | -0.39952 | 0.24334 | 1.00000 |
| VARAB | -0.17540 | -0.01283 | 0.53181 | 0.06647 | -0.03977 | -0.08899 | 0.01194 | 0.05278 | -0.03227 | -0.35105 | 0.31771 | 0.91516 |
| VARAC | -0.22344 | 0.03686 | 0.63294 | 0.02433 | -0.00579 | -0.06360 | 0.04836 | 0.13369 | -0.02937 | -0.50298 | 0.36832 | 0.58500 |
| VARAD | 0.13279 | -0.00585 | 0.21755 | -0.01035 | -0.05578 | -0.08648 | 0.16608 | 0.16988 | -0.04947 | 0.07165 | 0.27839 | 0.33421 |

FILE RTN1B (CREATION DATE = 03/24/77) SAMPLE NON-RETURN FILE #1 WITH FACSCR'S ADDED

| | VARAB | VARAC | VARAD |
|---|---|---|---|
| RETURN | 0.38517 | 0.48360 | 0.23491 |
| ACDSTA | -0.16044 | -0.19749 | -0.07895 |
| AGE | -0.22637 | -0.27877 | 0.12866 |
| APLMO | 0.54681 | 0.26056 | 0.16089 |
| CLASS | -0.15242 | -0.37020 | 0.04851 |
| CUMGPA | 0.21278 | 0.25772 | 0.16186 |
| CUMHRS | 0.21481 | 0.23972 | 0.23794 |
| HREARN | 0.23385 | 0.26106 | 0.24357 |
| HSPCT | 0.30552 | 0.45786 | -0.04910 |
| HSYR | -0.15041 | -0.19785 | 0.55042 |
| MAJR1 | -0.07644 | -0.11165 | -0.09260 |
| MAJTP1 | 0.25590 | 0.37157 | 0.26084 |
| MARITL | -0.17540 | -0.22344 | 0.13279 |
| PRES | -0.01283 | 0.03686 | -0.00585 |
| PSEMHR | 0.53181 | 0.63294 | 0.21755 |
| RACE | 0.06647 | 0.02433 | -0.01035 |
| RESFEE | -0.03977 | -0.00579 | -0.05578 |
| SEX | -0.08899 | -0.06360 | -0.08648 |
| TRANHR | 0.01194 | 0.04836 | 0.16608 |
| TRNGPA | 0.05278 | 0.13369 | 0.16988 |
| VET | -0.03227 | -0.02937 | -0.04947 |
| FACSCR1 | -0.35105 | -0.50298 | 0.07165 |
| FACSCR2 | 0.31771 | 0.36832 | 0.27839 |
| VARAA | 0.91516 | 0.58500 | 0.33421 |
| VARAB | 1.00000 | 0.69056 | 0.39620 |
| VARAC | 0.69056 | 1.00000 | 0.43147 |
| VARAD | 0.39620 | 0.43147 | 1.00000 |